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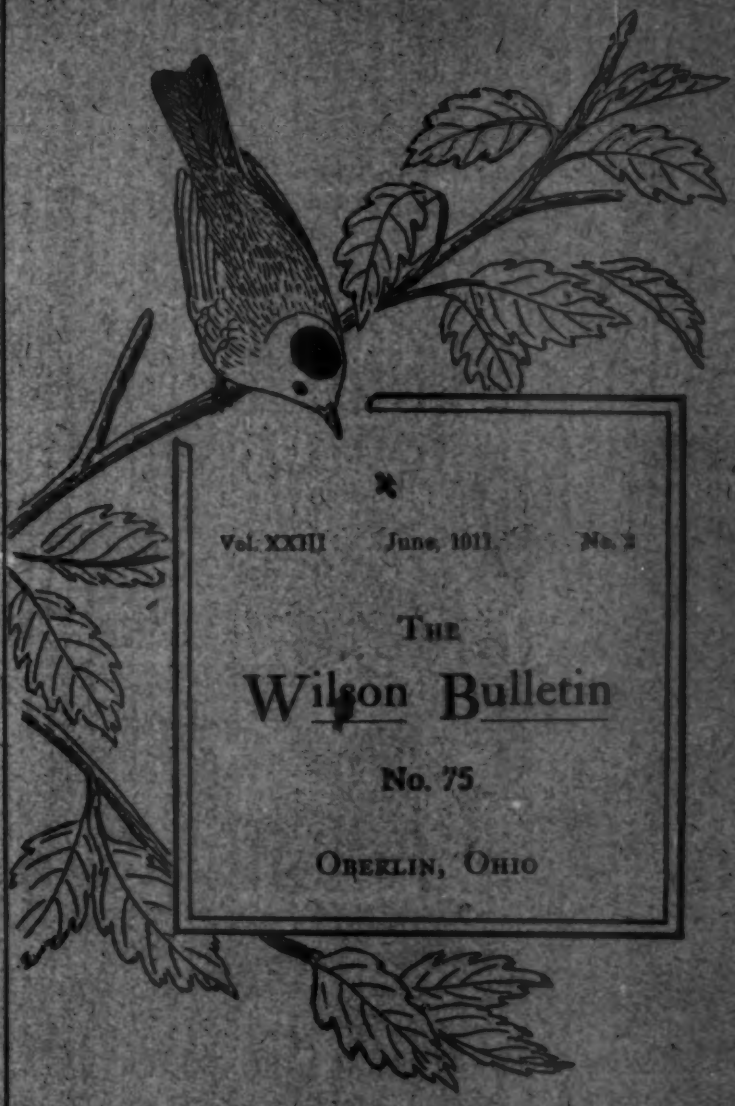

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THE WILSON BULLETIN

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SORA RAIL (*Porzana Carolina*) after sketches from life. R. J. S. Jan. 1911.

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NOTES ON CAPTIVE PALUDICOLAE.

BY ROBERT J. SIM.

To a naturalist whose home is far from any extensive marshes the opportunity to study rail-birds seldom comes. Even a month's stay in the neighborhood of acres and miles of swamps may result in only a few glimpses of the birds in question. And in such cases the rails are usually on the alert. They seem to fancy that danger lurks in every movement the observer may make. Now imagine trying to study intimately the ways of a human being if that person continually labored under the impression that his observer was bent on killing!

On April 29, 1907, an adult Sora Rail was brought to me. It was alive and in good condition except that one wing was a little stiff. Here was a chance to become acquainted with a rail and prove to him that there were no evil intentions or blunderbusses concealed about my person. He was liberated in a large room and provided with a dripping-pan of water, some mud, and, just for the sake of old times, a bunch of cat-tails. We spent many hours together studying each other. The world will never know what has been lost through the rail's inability to keep notes.

For several hours he skulked in dark corners and always succeeded in keeping some object between himself and the

human. But with increasing appetite and growing curiosity he became bolder. An earthworm was tossed to the floor a few feet away. The rail walked slowly out, picked up the worm, then dashed back to cover. After all this was repeated a few times with no ill results he stepped out more promptly and retired more slowly. From then on our familiarity grew. I have had several species (alive) of nearly every order represented in Ohio, and have yet to see the bird that will not resume its usual actions after it has once become accustomed to the presence of man.

A rail which is quite at ease is very different in appearance from one that is frightened or at all nervous. Most birds of this kind to be seen in taxidermial collections look as if they had been "scared stiff"—a state of things which is, perhaps, consistent enough. But a live, comfortable rail going about his own business is as graceful a bird as you could find, and plump like a guinea-hen or a Hubbard squash. The tail is carried in a horizontal position or droops slightly. On the other hand, when filled with apprehension the bird is very slim, the head is lowered and extended, and the tail is cocked up or is twitched up at every step. All the above in this paragraph applies as well to the Virginia Rail, the Coot and the Florida Gallinule. (The Sora shown in my drawing is in the act of pausing to inspect something on the ground before him).

As you know, all rails have long toes which enable them to keep up where the walking is soft. Without being in the least awkward about it my bird often stepped on his own toes, and nearly always stood with the inner pair crossed. When walking his movements were quick and noiseless even on the bare floor. I could never touch the bird, but his shyness was exceeded by his curiosity; and whenever I sat still for a little while he would walk round and round my chair, finally jumping up to my foot, knee, shoulder, and head, pecking at every thing on his way up. All drawing and writing had to be done slowly; for any quick movements would scare my subject away.

A Carolina Rail, it will be remembered, is scarcely more than eight inches in length. But when running it can set an astonishing pace, leaving tracks a foot apart! At such times the feathers are pressed close and the body is tilted up astern.

While in captivity my bird fed upon small beetles and earth-worms. One or two large "night-walkers" sufficed for a meal, but if the worms were smallish eight or ten were not too many. Considerable water was used inside and out. After a bath the wings were held in a roof-like position—like the wings of a Noctuid moth. In similar circumstances coots and gallinules expose their primaries to the sunlight in the same way.

At night the Sora roosted in some dark corner on the floor. He stood up on both feet with his head turned around and tucked under the humeral feathers from above.

A druggist in Jefferson once kept a live Coot in the store-window for some time. A corn-field was reproduced, for effect, in miniature. This bird ate all the insides out of a jack-o-lantern, reaching in thru the eyes and nose to do it, but instead of "shinning up a corn-stalk" to roost—as the owner declared—the coot spent his nights on the floor. His attitude in sleep was like that of the rail—excepting that he stood on one foot only. The other was quite concealed.

To me the marsh-birds have always had something of mystery about them. They seem to have been handed down to us from an earlier epoch and undergone little change. The robins, wrens, and other familiar birds quite likely looked on with approval when our hairy, low-browed ancestors gave up their arboreal habits and took to the ground; but the rails and mud-hens, or birds not far different, must have skulked in the shadows of huge amphibious animals in times when there were no men. There is something peculiar in the quizzical, half sinister glance of a rail-bird. One feels that this little dark eye had vague memories of sights which would make a man's blood run cold. It is at once alluring and forbidding. We are never taken fully into the confidence of a

marsh bird. Compare the look of a Rail with the honest, open regard of a robin.....All this, as you will say, is quite subjective and unscientific: but I leave it to you — *isn't* there something uncanny about a rail-bird?

THE RESULTS OF THE MERSHON EXPEDITION TO THE CHARITY ISLANDS, LAKE HURON.

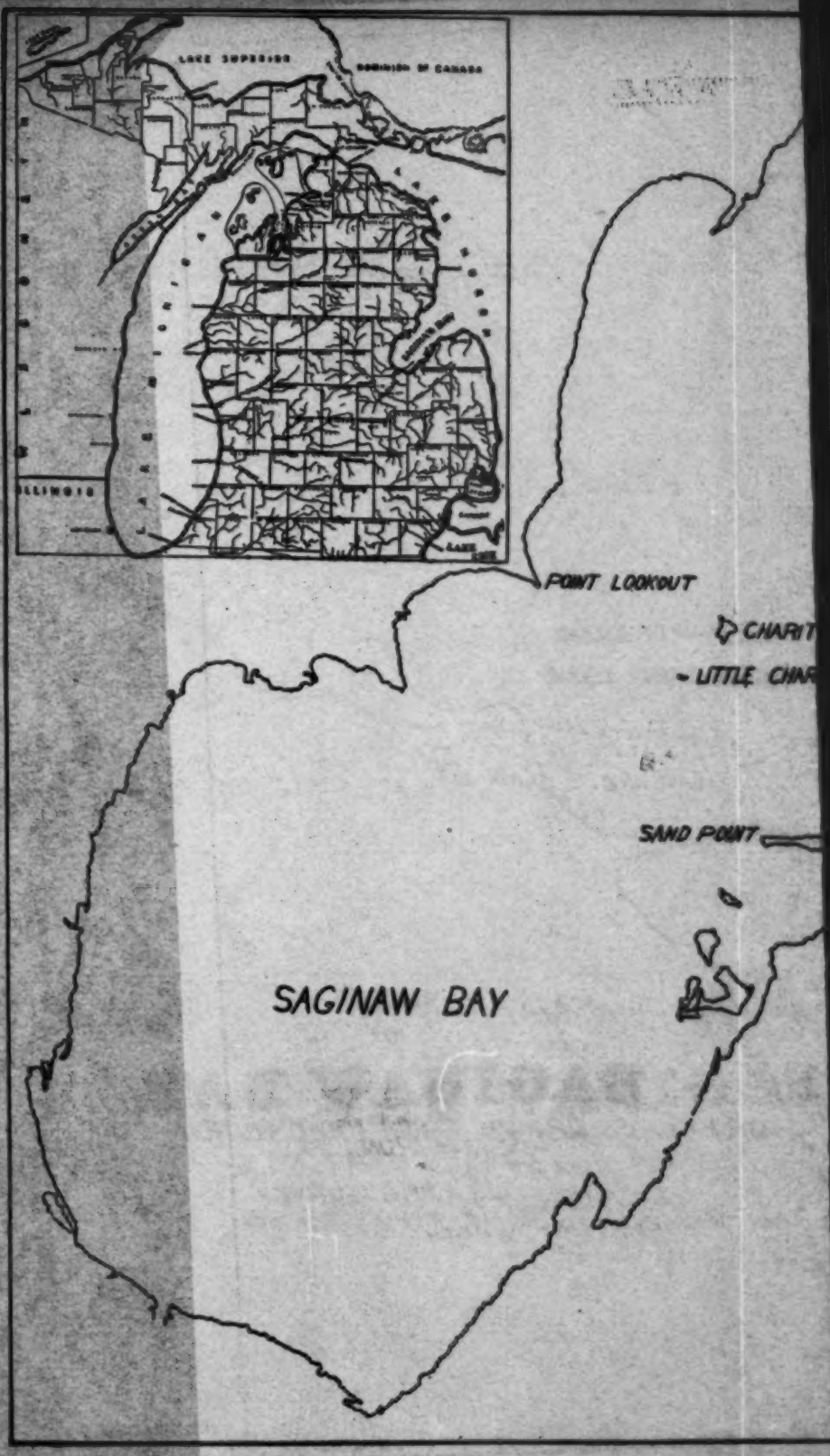
BIRDS.

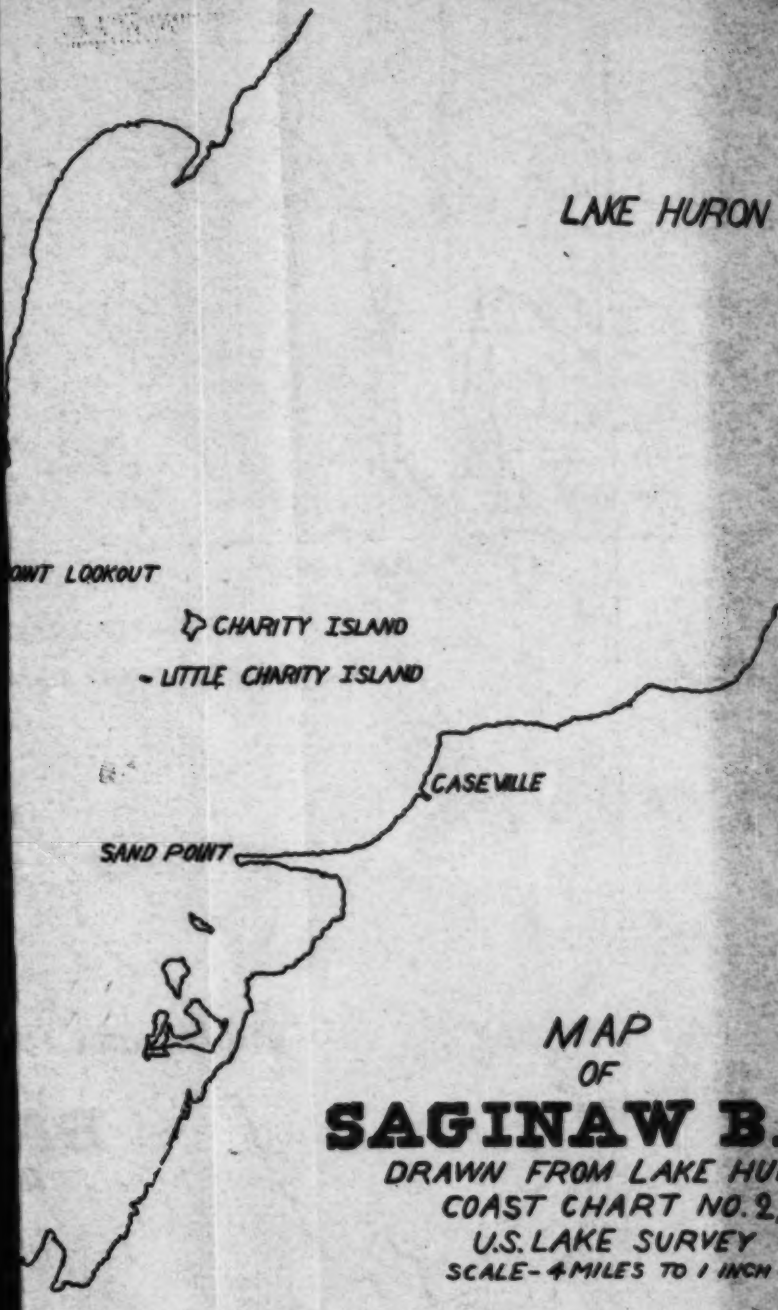
BY N. A. WOOD.

INTRODUCTION.

As may be inferred from the title, this paper is one of a series that is to appear on the fauna and flora of the Charity Islands, as the result of investigations carried on by different members of the Mershon Expedition of the University of Michigan Museum. A brief account of this expedition * by Dr. Ruthven has already appeared. It will be sufficient to say here that the work was made possible through the generosity of Hon. W. B. Mershon, of Saginaw, Michigan, and that it was carried on under the direction of Dr. Ruthven during the summer of 1910 by six men, each of whom gave primary attention to a particular group. The writer was given charge of the vertebrate work, and, the mammals, reptiles and amphibians being few in number, was able to devote nearly the entire time to a study of the birds. He arrived at the Charity Islands on August 16 and remained there until October 11. During a part of the time he was assisted by Mr. Frederick Gaige, who was on the island from September 7–28, and considerable assistance both in the way of specimens and data was received from the light-house keeper, Captain Charles C. McDonald, and his assistant, Mr. Joseph Singleton. Captain McDonald's assistance was particularly valuable as he had resided upon the island for

* Science, N. S., xxxiii, pp. 208-209.


LAKE SUPERIOR
DOMINION OF CANADA
ILLINOIS
POINT LOOKOUT
CHARITY
LITTLE CHARITY
SAND POINT
SAGINAW BAY



MAP
OF
SAGINAW B.
DRAWN FROM LAKE HU
COAST CHART NO. 2
U.S. LAKE SURVEY
SCALE - 4 MILES TO 1 INCH

HURON
N BAY
AKE HURON
T NO. 2,
URVEY
TO 1 INCH
M. Thompson Del.

twenty-nine years, and was familiar with a considerable number of species.

Charity Island, the largest of the islands in the group, is situated in the mouth of Saginaw Bay just above the parallel of 44° north latitude. It is owned by the United States Government and is used as a light-house station. The light is of the fourth order and stationary. The island comprises about 650 acres of sand and rock, and is covered with a natural forest of oak, maple and scattering Norway and white pine. A shallow pond of several acres lies near the west beach, and in the low land east of it is a fine growth of white birch. This pond is bordered on the north and west sides by a cranberry marsh which is now quite narrow although formerly quite extensive. The foundation of the island is the Maxwell sandstone which out-crops as ledges on the north and east sides of the island but which also appears on the other sides, especially on the five points, which are bare rock. Between these rocky points there are sand beaches of more or less extent, and, back of these, old beaches or low sand dunes of nearly uniform height cover nearly all of the island.

Most of the ridges are thickly wooded, but south of the center is an open area with a few scattered red oak trees, and on the west side there is a high dune covered with tall beach grass and scattered juniper bushes. The island is about seven miles east of Point Lookout on the west side of Saginaw Bay, and about nine and one-half and seven and three-fourths miles northwest of Caseville and Sand Point in Huron County.

Most of the work was done on Charity Island proper, and the observations recorded in this paper apply to that island unless otherwise stated.

The resident birds are few in number, but our list of breeding birds cannot be considered complete, for when work was begun (August 16) the nesting time for most of the birds was past.* The species that with little doubt bred on the island this summer were:

*** The Michigan Geological and Biological Survey plans to carry on biological investigations on the islands early in the summer of 1911, and the resident ornis will then be investigated in detail.**

Merganser.
Woodcock?
Spotted Sandpiper.
Bald Eagle.
Yellow-billed Cuckoo.
Black-billed Cuckoo.
Belted Kingfisher?
Northern Hairy Woodpecker.
Downy Woodpecker.
Northern Flicker.
Chimney Swift.
Kingbird.
Crested Flycatcher.
Least Flycatcher.
Wood Pewee.
Crow.
Purple Finch.
Blue Jay.
Goldfinch?
Field Sparrow.
Song Sparrow.
Swamp Sparrow?
Barn Swallow.
Cedar Waxwing.
Red-eyed Vireo.
Warbling Vireo.
Yellow Warbler.
Redstart.
Catbird.
White-breasted Nuthatch.
Chickadee.
Robin.
Common Tern
Black Duck?
Herring Gull?
Piping Plover, in other years but not in 1910 (see p. 92).

The absence of many of the species that occur commonly on the mainland is easily accounted for. As the island is small, there are only a few habitats, and these are mostly of very limited extent. Then again many plants and many species of animals other than birds are absent from the island. For instance, on the mainland one of the most common trees in the sand region about the bay is the jack pine but this species is represented on the island by only one small tree, and it is doubtless owing to this that, although on Sand Point, less than eight miles away, we found the pine warbler a common and breeding species in 1908, and it is known to breed commonly in the counties just across the bay to the west, the species was not seen on the islands even during migration. Its absence can be accounted for by the absence of the jack pine, which seems to be its favorite tree for both nesting and feeding. The absence of the scarlet tanager and Baltimore oriole cannot be explained in this way, but many other species of birds, as the meadowlark, bobolink, rails and bitterns, do not find suitable habitats on the islands, and

the hawks and owls cannot find suitable food there, as mice and other small mammals are absent.

NOTES ON THE FALL MIGRATION.

It is no doubt largely owing to their situation that the islands are used as a stopping and feeding place by the birds on their migrations. As it is, thousands of individuals alight here on the spring and fall migrations.

Nearly all of the waders came to the island during the day time. Most of the flocks were seen just at daylight or sunset, coming from the direction of the mainland, but others arrived at other times during the day. Several hawks, including the duck hawk, pigeon hawk, sparrow hawk, and sharp-shinned hawks, were also seen as they came to the island from across the bay, generally early in the morning or in the forenoon. On September 10, about 11 A. M., eight black-bellied plover and six golden plover came to Light-House Point, and small flocks of the former were seen coming from the west all day.

The winter species invariably came just before or during a cold north wind, and the American pipits, horned larks and Lapland longspurs came during the daytime. In Michigan we have very few records of the horned lark (*Otocoris alpestris alpestris*). Our resident form is *O. a. praticola*, a prairie form that has entered the state from the south and west, probably since it became settled. The first record for the horned lark was on September 18, for the pipit September 19, and for the longspur September 30. This was before the last great migration wave of warblers, which occurred October 5–6. The theory that the northern species are driven south by severe storms or a scarcity of food in their summer home is hardly in harmony with these facts. The snowflake was found on the beach at Caseville on October 12, and the northern shrike was found on the island October 7.

The species that migrate at night were studied by observing them as they passed the light, and by making a careful daily census of the bird life of the island. While it is a well

known fact that light-houses are quite destructive to birds on their migrations, it is not so well known that only a very small percentage of the birds that pass such lights ever strike them, while the number that are killed is even smaller. My observations confirm those of other observers in that the birds seemed to strike the light only under certain conditions. During my eight weeks stay on the island I found dead birds on but two occasions, although I saw birds fly around and past the light in great numbers nearly every night. As a rule, the weather was fine and the nights clear with the wind generally north or south, and birds do not generally strike the light under these conditions.

One of the most notable bird waves occurred on the night of September 4, when I noticed numbers of small birds flying past the light soon after it was lighted (which was always at sundown). The night was cool and cloudy and there was a light north wind. The birds came from due west and continued to increase in numbers until midnight, when a severe thunder storm came up from the northeast accompanied by strong wind and driving rain. This with the darkness seemed to confuse the birds, which came to the light in great numbers. From the west side of the platform which surrounds the light, I watched the migration until the storm was over, and at daylight the birds stopped flying. The wind and the rain did not seem to stop the migration and dozens of birds were in sight all of the time. Most of them came from the southwest and flew directly against the wind, which no doubt had forced them to the south of their line of flight while over the water. Most of them flew very slowly, and as they entered my vision they looked like drifting leaves, and, as they neared the light they went over, below, and all around it. A few fluttered against the glass and I caught several in my hands. A very few struck the glass with a dull thud, which I could hear even when on the other side of the light. Some of them fell dead on the platform, others bounded off to the ground. The majority of the birds that struck were only stunned and

soon fluttered into the darkness. At two o'clock the storm was at its height and the birds seemed to be as plentiful as at any time during the night, but were more confused and kept up a continual loud chirping, particularly the thrushes and vireos. These calls seemed to be of alarm, for on other nights they were more subdued. In the morning after the storm the whole island, but particularly the clearings and the willow bushes, was alive with birds. On the ground about the light I picked up twenty dead ones of seven species as follows: six olive-backed thrushes, seven bay-breasted warblers, one black-poll warbler, one magnolia warbler, one mourning warbler, one blackburnian warbler, and three red-eyed vireos.

Another large migration wave occurred on the night of September 6, but the night was clear and no birds struck the light, although many were seen flying past it. The wind was light and from the southwest. On the night of October 5 occurred the last and largest migration of birds that I saw on the island. October 5 was warm, clear and still, and the wind was southwest until about midnight, when it changed to the north and by morning was blowing a gale. It also became very cold. No birds were seen until after the wind had changed, when they commenced to fly and by early daylight were coming from the southwest across the bay. Under the light I picked up a dead male and female black-throated blue warbler, a redstart, one myrtle warbler, and one palm warbler. Thousands of these species with some black-throated green warblers, vesper sparrows and flocks of juncos also came. The migration continued long after daylight, and the birds flew low, many of them lighting on the roof, window ledges and steps of the light-house and on the ground in the clearing, especially under the shelter of the willow and other low bushes. The bulk of the migrants were myrtle and palm warblers, although there were many of the other species mentioned.

Captain McDonald told me that during the spring migration of 1910, he picked up one hundred and seventy-four dead birds in one morning under the light. These were mostly

small birds, many of them no doubt warblers, as he said they were brightly colored, and it was in May. He said that the birds never struck the light unless it was misty or foggy and very dark. Dixon * says, "It has been universally remarked by light-keepers that birds strike most frequently on dark cloudy nights, with fog, haze or rain. Instances of birds striking on clear nights are excessively rare." Writing of the large number of migrants taken on Heligoland, Gatke † says, "A necessary condition for this capture is a dark uniformly overcast sky, especially if there be at the same time a very fine precipitation of moisture." This almost exactly describes the conditions that occurred at the time the birds struck the Charity Island Light. Captain McDonald also told me that as a rule many more birds were killed during the spring migration, when the birds seemed to migrate more during cloudy and showery weather. Cooke ‡ says "Fully 60 per cent of the spring migration of 1884 took place in cloudy weather. It is probable, though I am not aware that it has yet been proved, that in the fall migration the reverse is the case, and the larger movement takes place in clear weather." This was certainly the condition of the fall migration of 1910 on Charity Island, only three of the twelve distinct bird waves occurring on dark or cloudy nights. It is to this fact that is due the lesser mortality of birds about this light in the fall.

The following localities are mentioned in the list of species:

Charity Island — the easternmost and largest island in the group.

Light-House Point — the northernmost point on Charity Island, on which the Light-house is situated.

East Point — the most eastern point.

Rattlesnake Point — the point lying between Light-House Point and South Point, on the west side of the island.

* The Migration of Birds, p. 269.

† "Heligoland as an Ornithological Observatory," p. 57.

‡ "Bird Migration in the Mississippi Valley." U. S. Dept. Agri., Econ. Ornith., Bull. 2, p. 17.

Little Charity Island — the westernmost island in the group, lying southwest of Charity Island.

Gull Island — a small islet a little west of south and about one-half of a mile from South Point.

LIST OF SPECIES.

1. (3) *Colymbus auritus.* HORNED GREBE.—This species was first seen near the east end of Little Charity Island on September 25, when one was noted feeding in company with a pied-billed grebe. On September 27, nine were seen diving and feeding near the end of Light-House Point. These birds were all in juvenile and winter plumage.

2. (6) *Podilymbus podiceps.* PIED-BILLED GREBE.—This grebe was first seen in company with a horned grebe near the end of Little Charity Island, September 25, and was next seen near the end of South Point of Charity Island, September 30. At Sand Point, three were seen on August 24, 1908. At Sand Point and on the Charities the fishermen said that the "hell divers were common in spring and later in the fall."

3. (7) *Gavia immer.* LOON.—On August 25 an immature bird of this species was seen near the south point of Charity Island, and another was seen near the island on October 4. The fishermen told me that numbers of them occur on the Bay every spring, and that they are very troublesome, as they light in the pounds and chase the fish around, causing the death of many and filling the meshes of the net with them. The loons are unable to get out of these pounds, and the fishermen kill numbers of them, sometimes tying five or six together and then setting them adrift on the water.

4. (51) *Larus argentatus.* HERRING GULL.—This was one of the very few species seen every day and was abundant when we arrived at the island on August 16. A small sandy island with a long rocky point (Gull Island) about a half mile south of Charity Island, was used as a headquarters for a flock of about two hundred, many of which were immature. Some of these birds were always flying about Charity Island, and I saw them drop down and pick up floating fish in their bills. After the fishermen set their nets (about September 10) these birds always followed the boats and were on hand to catch the small and injured fish that were rejected when the nets were lifted. These they picked up while on the wing, turned them head first and swallowed them. Fish of a pound or more in weight were taken. After the fish had been eaten, the birds sat in flocks on the water or on the fish stakes that held the nets and were often seen perched on the rocks of Gull

Island. The species formerly nested in small numbers on Gull Island and no doubt on the Charity Islands, and some may be seen here at nearly all seasons of the year.

5. (54) *Larus delawarensis.* RING-BILLED GULL.—This species was not noticed about the island, but it no doubt visits them on the annual migrations up and down the lake, as numbers were seen by the writer at Sand Point in 1908.

6. (60) *Larus philadelphia.* BONAPARTE'S GULL.—On August 25, five birds of this species were seen flying near the east beach, and on August 27 and 28 nine were seen on the same beach. On October 12, the writer made a trip to Oak Point, where he saw a flock of about two hundred feeding along the beach. The fishermen call this species the "little herring gull" and told me that they occur in flocks of thousands later in the fall, when the herring are being taken in the nets.

7. (70) *Sterna hirundo.* COMMON TERN.—This is another species that was seen every day. Two or three hundred made their headquarters on Gull Island, and most of these bred there. The fishermen said that the island was covered with the nests and eggs every spring. Some of the young were still being fed when I arrived on August 16. On Charity Island, I saw old birds feeding young that were able to fly but not to catch fish for themselves.

Individuals were often seen to drop into the water and catch and eat small fish. On several occasions birds with small fish crosswise in their bills flew across Charity Island on their way to Gull Island. At other times dozens were seen dipping down to the water of the bay to pick up the flying ants that were strewn over the surface.

Captain McDonald said that in June and July the ants fly all over the bay and are sometimes seen in "windrows" on the beach like the May flies. The assistant keeper, Mr. Joseph Singleton, said that during the summer these ants were found in large numbers on the stakes and the parts of the nets that were out of the water, and were a nuisance to the fishermen who had to handle the nets. He said that these were large black ants, mostly with, but some without, wings. These no doubt form a large proportion of the tern's food at this time of year, for as late as August I saw them continually dipping down to the surface, and the stomachs of several taken on September 15 were packed with ants. One was opened and was found to contain 144 ants. This same species of ant was found under stones at the water's edge on Charity Island.

8. (120) *Phalacrocorax auritus auritus.* DOUBLE CRESTED CORMORANT.—The only bird of this species seen was flying across

Light-House Point on the evening of October 10. It is, however, occasionally seen in the fall about the island. Mr. McDonald has tried several times to shoot one, and one was obtained by Mr. Singleton near North Island (about ten miles south of Charity Island) on November 25, 1909. This bird was sent to Detroit to be mounted, and is now the property of Mr. John Bell of Pontiac, Michigan.

9. (129) *Mergus americanus.* MERGANSER.—This species was first seen on August 17, and after this date flocks of eight to twenty were seen nearly every day, feeding and swimming about the shores of the island. These birds were still in the down and were unable to fly until about September 15, although they made rapid progress over the water by the combined use of their feet and wings. In feeding they swam along the edge of the rocky beach and seemed to scoop up the small fish and crawfish which formed their principal food. The only adult male seen was during a short visit to the island on June 3, when a pair was seen flying along the shore near the light-house. Several broods were raised on the island.

10. (130) *Mergus serrator.* RED-BREASTED MERGANSER.—None of this species were seen, but it is included on the authority of the light-house keeper, who said that in spring and late fall it is common about the island.

11. (131) *Lophodytes cucullatus.* HOODED MERGANSER.—This species was not seen, but it is common in fall and spring, according to the keepers of the light, who have often shot them at the island in the fall. It was said to have formerly bred on Charity Island, which is possible, as the species has been found breeding about the shores of Saginaw Bay.

12. (132) *Anas platyrhynchos.* MALLARD.— The mallard was not seen during my stay on the island, but Mr. Singleton shot three on the pond in October, 1909. Small flocks occasionally stop here to rest and feed, both in spring and fall, and the species breeds at Sand Point, only eight miles south of the island. In a letter Captain McDonald says that late in October, 1910, one of this species was shot on the island pond.

13. (133) *Anas rubripes.* BLACK DUCK.—This species did not breed on the island, but a flock of nine was seen several times about Gull Island. These may have bred there as they could not fly when first observed. On September 17, three black ducks flew quite close to Light-House Point, and on October 2, a larger flock was seen flying near the island.

14. (139) *Nettion carolinense.* GREEN-WINGED TEAL.—This species was not seen by the writer, but was taken at the island in

October and November, 1909, by Mr. Joseph Singleton.

15. (140) *Querquedula discors.* BLUE-WINGED TEAL.—This teal has, according to the keepers, also been taken at the island, both in spring and fall, but was not seen by us.

16. (143) *Dafila acuta.* PINTAIL.—The pintail was reported as not uncommon about the island, in spring and late fall.

17. (144) *Aix sponsa.* WOOD DUCK.—This species was said to have once bred on the island, and has been seen by the keepers in the spring and fall.

18. (146) *Marila americana.* REDHEAD.—The redhead occurs about the island in spring and fall, and has often been seen and occasionally shot by the light-house keepers.

19. (147) *Marila valisineria.* CANVAS-BACK.—This species occurs with the redhead in migration, and is sometimes taken by the keepers.

20. (148) *Marila marila.* SCAUP DUCK.—Mr. Singleton informed me that the blue-bill is common about the island during migrations. He shot an adult female on November 10, 1910, and sent it to the Museum.

21. (149) *Marila affinis.* LESSER SCAUP DUCK.—This species is no doubt more common than the preceding, and probably composes the bulk of the blue-bills seen here.

22. (151) *Clangula clangula americana.* GOLDEN-EYE.—The first record for this duck was obtained by the writer on October 4, when an adult male was noticed feeding off the end of Light-House Point. The species was seen again at the same place on October 9. The keepers said that it was very abundant in November and December all about the island, and that they shot more of this species than of any other. Mr. Singleton sent to the Museum two adult females that were taken at the island on November 12, 1910.

23. (153) *Charitonetta albeola.* BUFFLE-HEAD.—This duck was not seen by the writer, but Mr. McDonald said that it occurred on the pond both in spring and fall.

24. (154) *Harelda hyemalis.* OLD-SQUAW.—The old-squaw is a very common species about the island in fall, winter and spring. The first ones were seen by the writer on October 11, but the fishermen said that they made their appearance about their nets on Sepember 25 of this year. They call the species "Cow-een" and "squealing duck."

25. (172) *Branta canadensis canadensis.* CANADA GOOSE.—Not seen by us but said to be abundant during migrations both in spring and fall. Mr. McDonald said that several were once killed as they were crossing over the island.

26. (190) *Botaurus lentiginosus.* BITTERN.—This species was first seen on August 17. It may have bred on the island, although only one or two were observed. They were generally found about the shore of the pond, but one was seen on South Point and one on Rattlesnake Point. The last one seen was on September 15, near the pond.

27. (194) *Ardea herodias herodias.* GREAT BLUE HERON.—This species did not breed on the island, and it was usually seen only as it flew across from the west side of the Bay. It was first noted on August 21, when the writer saw one come from the west and fly across the island to the east; and others were seen on September 1, 5, and 25. The only place where it was seen to alight was in the pond, where it was observed on two occasions.

28. (212) *Rallus virginianus.* VIRGINIA RAIL.—This rail was a rare migrant on the island, being seen only twice—on September 2, in tall rushes at the edge of Rattlesnake Point, and on September 11.

29. (214) *Porzana carolina.* SORA.—The sora was more common than the preceding, and was first seen on August 27 at the edge of the pond. Two others were flushed from this place. It was also seen in the rushes at the edge of Rattlesnake Point, where the last one was seen on September 27.

30. (228) *Philohela minor.* WOODCOCK.—This species may have bred here, for on August 17 the writer saw where they had been feeding, and later (October 8) a very large female was taken near an old garden. This bird had not finished moulting. One or two smaller birds were also seen at different times at the same place, but there seemed to be no migration to or across the island.

31. (230) *Gallinago delicata.* WILSON'S SNIPE.—This snipe was first seen on August 24, on the mud flats about the pond. After this date one or two were usually to be found at this place. It was also found on the beaches about the island, and on one occasion was taken on the high open sand dune in the interior. The last bird was seen at the edge of the pond, on October 8.

32. (234) *Tringa canutus.* KNOT.—The only birds of this species seen were two found on the west beach, on September 1. They were feeding in shallow water, and the one taken proved to be an adult female in full winter plumage. This species is either raely seen in Michigan, or is not well known to local ornithologists, for very few have been recorded. It is, however, a regular (if rare) migrant along the shores of the Great Lakes. Near Little Oak Point, three of these were seen on August 20 and 21, 1908, by Dr. Ruthven.

33. (241) *Pisobia bairdi.* BAIRD'S SANDPIPER.—This species was first identified on August 23, when two specimens were seen in a flock of least and semipalmated sandpipers. On August 24, three more were seen, but these were the last ones noted. This species is not well known, but doubtless is a regular migrant on the shores of the Great Lakes. At Point Pelee, Lake Erie, the writer found them rather common on August 24-26, 1907, and secured several. It also occurs rarely inland, and there is one in the Museum collection that was taken at Ann Arbor on August 15, 1893.

34. (242) *Pisobia minutilla.* LEAST SANDPIPER.—This sandpiper was found on the island the next day after we arrived there, August 17. It had probably been there for some time in company with the semipalmated sandpiper. It was not common and was last seen on August 29, when an adult female was found in a flock of semipalmated sandpipers. The species is one of the earliest fall migrants in this section, and has been noted at Ann Arbor as early as July 21 (1908).

35. (246) *Ereunetes pusillus.* SEMIPALMATED SANDPIPER.—This species was present when the writer arrived at the island (noted on August 17), and was seen in varying numbers until September 25. On the last date only two were seen. It was the most numerous and tame of all the waders. It also migrates through the interior of the state, and has been noted at Ann Arbor as early as August 8 (1908).

36. (248) *Calidris leucophaea.* SANDERLING.—During the night and early morning of August 20, small flocks of this species came to the island from the northwest. The wind was south and southwest for twenty-four hours, but was not strong. It was last seen on the island on October 7, but a flock was seen at Oak Point, on the mainland, on October 12. This is one of the most common migrants along the shores of the Great Lakes, but is rarely seen inland. The only Ann Arbor record is the four that were seen on August 23, 1899.

37. (254) *Totanus melanoleucus.* GREAT YELLOW-LEGS.—The first bird of this species was noted on August 23, at Rattlesnake Point. No more were seen until October 6, when a pair of birds was seen at the same place. The species also migrates through the interior of the state, and has been taken at Ann Arbor as early as September 21 (1907) and as late as October 22 (1907).

38. (255) *Totanus flavipes.* YELLOW-LEGS.—On August 19, two yellow-legs were seen on the beach near the light-house, but these were the only ones observed on the island. It also migrates through the interior of the state, and has been seen near Ann Ar-

bor as early as July 14 (1909) and July 21 (1909), and as late as October 3 (1908).

39. (256) *Helodromas solitarius solitarius.* SOLITARY SANDPIPER.—This species was on the island when we arrived (August 17), and was generally found on the mud flats about the pond, although it was also occasionally seen on the sandy beach on the east end of the island. The last one seen was on September 24. The species also migrates inland, and has been seen at Ann Arbor as early as July 15 (1910).

40 (263) *Actitis macularia.* SPOTTED SANDPIPER.—This sandpiper was very common on the island and bred in numbers on the sandy beaches. On my first visit to the island (June 3), I saw several pairs on the sand dune near the light-house, and on August 16 it was a very common bird all about the island. The other species of waders came and went, but a few of this species might be seen every day until September 28, when the last one was seen.

41. (270) *Squatarola squatarola.* BLACK-BELLIED PLOVER.—The plover was first seen on August 20, when three birds were observed on the beach at Rattlesnake Point. These were all adults; two were in nearly full spring plumage, and the other was partly changed. On August 22, a flock of twelve adult birds came to the island. Six of these were in the black plumage with only a few white feathers on the throat and neck. These were very conspicuous on the sandy beaches. The other six were more or less spotted with white, and were not so conspicuous. This flock fed on the beaches about the island, but preferred the rocky ones, where I often saw them perched on the big boulders or feeding among the rocks. In these places they fed upon the small water snails. On September 26, only three of this flock remained, one of which was still in the black plumage with some scattered white feathers. The latter bird, with a young one, was secured, and were the last ones seen in this plumage. These adult birds were very shy and difficult to secure, but the young birds, which first made their appearance on September 10, were easily approached. No adult birds came to the island after August 22, and the twelve adults that came at that time, with the addition of the three that came August 20, were the only adult birds seen in a total of over one hundred observed. The keepers of the light said that they had never seen this species on the island in spring, although it no doubt migrates northward along the shores of the Great Lakes. The keepers have seen them as late as November 21 (1909). The species does not usually migrate inland, and has been recorded from Ann Arbor but once, October 5, 1876. It was found in numbers on

Sand Point by Mr. Joseph Singleton, on September 15, 1910, but was not seen there by the Biological Survey party in 1908.

42. (272) *Charadrius dominicus dominicus.* GOLDEN PLOVER.—The golden plover was not seen until September 9, when a single bird, an adult male, came to Light-House Point. On September 10, a flock of six came to the Point in company with a flock of black-bellied plover, and the only one secured was an adult female. The remainder of this flock flew off to the south and was not seen again. The next record was on September 27, when a lone bird, an adult male, was secured on Light-House Point. These birds were all in fall plumage and had no black breast feathers. The last one seen on the island, an immature male, was secured at Rattlesnake Point, by the writer, on October 1. The species is found inland more often than the preceding, and migrates throughout the state, feeding on the dry meadows (in the greatest numbers in the fall). The writer has seen it but once in the spring at Ann Arbor (April 20, 1890), and very few have been recorded. On October 1, 1890, the writer saw a large flock feeding on a high meadow near Ann Arbor, but it has not been seen now for many years in that region. The one secured on October 12, 1895, near Gibralter, at the mouth of the Detroit River, seems to be the only record for the Detroit River region (Auk, 1907, p. 141).

43. (273) *Oxyechus vociferus.* KILLDEER.—This species was first seen at Light-House Point on August 25. On September 21, another was seen at the end of South Point, and one was taken on the east beach September 27. The last was a juvenile male and still had some down on the ends of the tail feathers.

44. (274) *Aegialitis semipalmata.* SEMIPALMATED PLOVER.—The first bird of this species was seen on August 20, on Light-House Point, and on August 21, small flocks came in company with semipalmated sandpipers and sanderling. From the latter date to September 30, they were seen but rarely. Only one or two adult birds were seen, and these were among the first arrivals.

45. (277) *Aegialitis meloda.* PIPING PLOVER.—None of this species were seen on the island by the writer, and Captain McDonald said that he had not observed it in 1910, but that a pair nested near the light-house in 1909. The species was found breeding on the island on May 20, 1903, by Arnold.*

46. (283) *Arenaria interpres morinella.* RUDDY TURNSTONE.—A single bird of this species was seen on the light-house beach on the morning of August 19. It was an adult and partly in spring plumage. The next one seen (August 24) was also an adult bird

* Bull. Mich. Ornith. Club, Vol. IV, No. 3, p. 74.

in nearly perfect spring plumage. These were the only adult birds seen. On August 6, a flock of six was seen on Rattlesnake Point. These were young birds and so fearless that we could walk by them at a distance of fifteen feet without frightening them. The light-house keepers said that the species was common in May and that some were seen as late as June 15. At Point Pelee, Ontario, the earliest record given (Taverner, 1907), is August 24. The turnstone is a regular migrant along the shores of the Great Lakes, rarely going inland. There is no record for Ann Arbor.

47. (316) *Zenaidura macroura carolinensis.* MOURNING DOVE.—The mourning dove was a rare species on the island, being seen but once, August 19. This bird was no doubt a straggler. It is doubtful if it breeds on the island.

48. (331) *Circus hudsonius.* MARSH HAWK.—This species did not breed on the island, and was first noted on August 23, when an immature bird was seen sailing about over the east end. On August 28, and at various subsequent dates, a few others were seen. The only adult bird (male) was observed on October 8. The rarity of this species on the island is probably caused as much by the absence of mice and the small number of frogs, as to the small number of suitable nesting sites.

49. (332) *Accipiter velox.* SHARP-SHINNED HAWK.—The sharp-shinned hawk was first seen on September 3, and, while seen at various times after this date it did not become very common at any time. The light-house keepers said that in the spring hawks were abundant and many of them are no doubt of this species. On the east side of the Bay, about twelve miles from the island, a hunter told the writer that small hawks were very abundant for several days in the spring, and that he once shot twenty-seven in a short time. He thought they were of this species. The last birds seen on the island were two that were observed on October 5. No adults were observed.

50. (333) *Accipiter cooperi.* COOPER'S HAWK.—Cooper's hawk was seen but twice on the island, on September 6 and 20, These were immature birds.

51. (337) *Buteo borealis borealis.* RED-TAILED HAWK.—This hawk was not seen on the island, but the light-house keepers said that it comes there in the spring. On October 12, the writer saw an adult bird soaring over the woods near Oak Point.

52. (352) *Haliæetus leucocephalus leucocephalus.* BALD EAGLE.—This species breeds on the island, where there is one nest in an old Norway pine. This nest is mentioned by Arnold,* who says,

* Bull. Mich. Ornith. Club, IV (1903), p. 74.

"a pair of eagles has nested there for many years." One or two birds were seen nearly every day, and they were still there when we left the island (October 11). These birds fed on fish, which were abundant on the shores of the island. On one occasion the writer saw an adult bird drop into the water and rise with a good sized fish in its talons, and at other times it was seen perched on the big boulders on the east point, where it seemed to be watching for fish. Generally, however, the birds were to be seen perched on the tall dead trees along the shore, or soaring about over the water.

53. (356a) *Falco peregrinus anatum.* DUCK HAWK.—This rare and beautiful hawk was first seen on September 20. On this date, as the writer was walking along the east beach, a dark-colored young bird flew past over the water. A long shot failed to bring it down, but it was wounded and was later found in the top of an oak on the sand dunes. On September 22, another dark-colored bird was seen early in the morning, chasing a flock of sanderling at the end of Light-House Point. When it captured a bird it carried it away to a dead cedar tree near the beach and ate it. This hawk was not seen again, and no more came to the island until September 30, when a large bright-plumaged bird was seen but not secured. On October 3, another dark-colored bird was seen on the rocks at the water's edge. This bird flew along the beach and lit on a dead tree on the first sand dune. It was also an immature bird, and on October 5 still another dark-colored bird was observed but not secured. The island seemed to be only a stopping place for this species, which probably does not find much food there, and no ducks at all at this season of the year. The keepers said that it was more common during the spring migration.

54. (357) *Falco columbarius columbarius.* PIGEON HAWK.—On August 30, a hawk of this species was seen on the dead tree where the duck hawk was secured. This bird was eating a small bird. On September 6, another one was observed chasing thrushes, which seemed to be the principal food of the species and which came to the island on the night of September 4-5 in great numbers. The writer's experience with this falcon at Isle Royale, Charity Island, and elsewhere, seems to show that it migrates at the same time as, and no doubt follows, the thrush migration. Eight or ten of these falcons were seen on the island by the writer, and whenever one appeared it was usually seen flying along the beaches, where they sometimes perched on rocks at the water's edge, or on old dead stubs or trees. One was seen chasing a flicker, but the latter with a frightened cry dodged through a tree and escaped. This falcon is even more bold and fearless than the

duck hawk and often flew straight at and over the writer when in plain view. It also came to Light-House Point and often flew over our work camp. Only one of the birds seen (a male) was in the beautiful blue plumage, although one or two others seemed fully adult. On October 10, two of these birds were seen perched on dead trees not far apart, and seemed to be in company. They proved to be an adult male and female and were possibly a pair.

55. (360) *Falco sparverius sparverius.* SPARROW HAWK.—The first sparrow hawk seen on the island was on August 22. Two others were noted on September 5 and 18, and on September 19 three were seen flying about over the beach near the pond. The latter were the last ones seen, and none of those observed stayed more than one or two days on the island. This was no doubt owing to the fact that there were few grasshoppers or other insects for them to feed upon.

56. (364) *Pandion haliaetus carolinensis.* OSPREY.—One osprey was seen soaring about over the Bay near the island, on August 21. The keeper said that it was more common in the spring.

57. (366) *Asio wilsonianus.* LONG-EARED OWL.—This species was not seen by the writer, but Mr. Singleton shot one on the island early in the spring of 1910. This was no doubt a straggler.

58. (367) *Asio flammeus.* SHORT-EARED OWL.—This owl was first seen on September 7, when one was flushed from the rushes on Rattlesnake Point. Others were seen on September 9 and 26, at the same point. It was seen twice at the end of South Point, and once on the sand dune on the east beach. It seemed to be but a rare visitor on the island.

59. (375) *Bubo virginianus virginianus.* GREAT HORNED OWL.—The writer did not see this species, but, during the winter of 1902-1903, three came to the island and were shot in the spring by the keepers because they caught their chickens. Captain McDonald had a photograph of one of these.

60. (376) *Nyctea nyctea.* SNOWY OWL.—This species is given on the authority of Mr. McDonald, who has seen a number on the island in past years. It no doubt occurs there nearly every year, but during migrations only, as there is no permanent food supply.

61. (387) *Coccyzus americanus americanus.* YELLOW-BILLED CUCKOO.—The yellow-billed cuckoo was seen the first day the writer went over the island (August 17), and no doubt belongs in the list of summer residents. It was seen again on August 20 and at later dates until September 10, when it left the island. It seemed more common than the next species, although as shy and hard to observe.

62. (388) *Coccyzus erythrophthalmus.* BLACK-BILLED CUCKOO.—This species was seen first on August 22 and again on September 7, 15 and 20. It no doubt bred on the island, as immature birds were found, and it was probably more common than the number seen indicated, for it is a shy bird and no particular effort was made to find it.

63. (390) *Ceryle alcyon.* BELTED KINGFISHER.—When the writer arrived (August 16), there were several kingfishers on the island. These birds remained until October 9, but only one stayed after this date. It no doubt breeds on the island, but only in small numbers, owing to the lack of suitable breeding sites.

64. (393) *Dryobates villosus leucomelas.* NORTHERN HAIRY WOODPECKER.—This woodpecker is a rare resident and breeds on the island. Only a few were seen by the writer. Captain McDonald told us that it remains all winter in small numbers.

65. (394c) *Dryobates pubescens medianus.* DOWNY WOODPECKER.—Like the preceding this species breeds only in small numbers on the island.

66. (402) *Sphyrapicus varius varius.* YELLOW-BELLIED SAPSUCKER.—The yellow-bellied sapsucker was first seen on September 15, when a single bird was observed. The species did not become common until September 21, when there occurred a migration wave. It became abundant at this time and continued so until September 29, when most of them passed on. A number were still left, however, and a few were seen as late as October 9. The writer never saw so many birds of this species on a given area as on the island during this migration, and Mr. McDonald said that it is even more abundant in the spring. The bark of almost every suitable tree on the island was nearly covered with their work. No nesting cavities were seen, and it probably did not breed there.

67. (406) *Melanerpes erythrocephalus.* RED-HEADED WOODPECKER.—The red-headed woodpecker is a rare breeder on the island and very few, probably not more than one or two broods, were seen. There seemed to be no increase in numbers during any of the migrations. The last one was seen on September 28.

68. (412a) *Colaptes auratus luteus.* NORTHERN FLICKER.—A few flickers were on the island on August 16, but only a few broods were seen until September 6. On the latter date it became very common and was seen feeding everywhere, on the sand dunes as well as in the forest, on ants and the berries of the poison ivy. (The latter grows as a dwarf shrub, one to four feet high, on the islands.) The species continued abundant until October 2, when they nearly all left the island. A few, however, lingered, and two more were seen as late as October 10.

69. (417) *Antrostomus vociferus vociferus.* WHIP-POOR-WILL.—This species evidently did not breed on the island, as none were seen until September 9. On this date, the writer flushed one from the side of the path. This bird was the only one seen and was no doubt a straggler from the mainland.

70. (420) *Chordeiles virginianus virginianus.* NIGHTHAWK.—The nighthawk was not a breeder on the island, and none were seen until August 21, when eight flew over the light-house clearing. It was seen again in the evening on August 22, 23, 25, 28, and September 7.

71. (423) *Chaetura pelagica.* CHIMNEY SWIFT.—A family of four inhabited the light-house chimney during the summer. These birds were seen last on August 19, and no others were observed.

72. (428) *Archilochus colubris.* RUBY-THROATED HUMMINGBIRD.—The writer did not see this species until August 27, and only a few times during migration. It is doubtful if any bred on the island this summer, although it was an abundant migrant in May, when the keepers saw thirty at one time about an apple tree in bloom.

73. (444) *Tyrannus tyrannus.* KINGBIRD.—Kingbirds were found on the island on August 16, and no doubt bred there. They were common and were noted daily until September 5, but after the latter date it was seldom seen. It was not observed at all between September 15 and 27, when the last record was secured.

74. (452) *Myiarchus crinitus.* CRESTED FLYCATCHER.—This species was also found on the island on August 17,, and no doubt nested there. Several were observed until August 19, after which date it was not seen.

75. (456) *Sayornis phoebe.* PHOEBE.—The first record of the occurrence of the phoebe on the island was September 19. It was again observed on September 24, but only rarely between that date and October 8, which was the last time it was seen.

76. (459) *Nuttallornis boreális.* OLIVE-SIDED FLYCATCHER.—This flycatcher was first seen on August 18. It was not a common migrant, although several were noted previous to August 31—the last date upon which it was observed. It seemed to prefer the tops of old dead trees along the east beach.

77. (461) *Myiochanes virens.* WOOD PEWEE.—On August 17, the pewee was common on the island, and it was seen nearly every day until September 20. The last one was observed on the latter date.

78. (463) *Empidonax flaviventris.* YELLOW-BELLIED FLYCATCHER.—The first record for this species was secured on August 29. After that date, it was common until September 6, when it left the

island. It was found feeding in the willows and poplars along the beaches, and was seldom seen in the forest except at the edge.

79. (466a) *Empidonax trailli alnorum.* ALDER FLYCATCHER.—This flycatcher was first seen on August 27, in the willows at the edge of the pond. It was rather common in the bushes about the beaches until September 6, after which it was not observed.

80. (467) *Empidonax minimus.* LEAST FLYCATCHER.—As it was found on the island on August 18 and was occasionally seen until September 21 (the last date on which it was observed), it seems probable that the least flycatcher bred in small numbers on the island.

81. (474) *Otocoris alpestris alpestris.* HORNED LARK.—The horned lark was first seen on the island on September 18, when one bird was observed on the rocky beach at Rattlesnake Point. It was not seen again until the morning of September 24, when a flock of fifty came across the Bay and lit on the ground about the light-house, where the birds fed on the seeds of the beach grasses. On the next day this flock passed on, and no more were seen until September 27, when a smaller flock was seen on the rocks at the end of Light-House Point. This flock passed on the same day, and the species was not seen again until October 1 and 6, a single bird being seen on each of these days. The latter were the last birds seen by the writer, but Captain McDonald said that they become more abundant later in the season.

All of these birds were typical *O. alpestris* and many of them were bright adult birds. Cook * says of this species in Michigan, "Rather rare; irregular fall and spring visitor." The records for Michigan are few, and in the University of Michigan Museum there are but three birds that have been taken in Michigan, one from Montcalm County, one from Isle Royale, and one from Houghton. The reason why only the form *praticola* is found in the interior of the state is perhaps that the typical form follows the shores of the larger bodies of water during migration, preferring to find its food upon the sandy and rocky beaches rather than in the woods and fields of the interior. At Point Pelee this species has never been observed, although, as Taverner (1907-8) has pointed out, "it might be expected to occur."

82. (477) *Cyanocitta cristata cristata.* BLUE JAY.—Although a summer resident, few blue jays were seen until September 17, when a flock of about thirty was observed high in the air and coming from the west. When over the west beach, this flock descended to the tops of the high trees. The resident birds of the island seemed to unite with these and were seen every day flying

* Birds of Michigan. Mich. Agri. Col., Bull. 94, p. 84.

about the island in a loose, irregular flock, which was still present when we left, October 11. On several occasions this flock was seen to start from the south point, and, after flying out over the water, turn and come back to the island again. Mr. McDonald said that some blue jays generally winter on the island, but these are probably migrants from farther north.

83. (488) *Corvus brachyrhynchos brachyrhynchos.* CROW.—The crow was a common breeder on the island and was seen and heard every day during our stay. It was very tame and, during the summer robbed the nests of the poultry at the light-house. On September 14, a large flock of about one hundred came to the island, but this flock was seen only on this day and went on, leaving about the same number of resident ones as before. The keepers said that a few generally stay all winter.

84. (494) *Dolichonyx oryzivorus.* BOBOLINK.—This species was not seen by the writer, but it is listed on the authority of the keepers, who said that flocks are seen here during the spring migration.

85. (495) *Molothrus ater ater.* COWBIRD.—The cowbird was very rare on the island, being seen only once, September 11, when a single individual was observed by the writer. Its absence is peculiar, for on Sand Point, where the conditions are very similar, it is a very common resident.

86. (498) *Agelaius phoeniceus phoeniceus.* RED-WINGED BLACKBIRD.—The writer saw no specimens of this species even during migration. This is rather singular, as it is a not uncommon breeder on Sand Point.

87. (501) *Sturnella magna magna.* MEADOWLARK.—The only bird of this species seen, a beautiful adult male, came to Light-House Point early on the morning of September 29. The keepers said that it is common in spring, migrating in flocks to and across the island.

88. (507) *Icterus galbula.* BALTIMORE ORIOLE.—The writer did not observe the oriole on the island, but lists it on the authority of the keepers, who said that it was very common during the spring migration in May.

89. (509) *Euphagus carolinus.* RUSTY BLACKBIRD.—The first record for this species was secured on September 13. After that date it was seen at various times, and some were still present when the writer left the island. It generally fed along the beaches and near the edge of the water. On October 2, flocks were seen feeding about the heaps of fish refuse on Little Charity Island.

90. (511b) *Quiscalus quiscula æneus.* BRONZED GRACKLE.—This species is listed on the authority of the keepers, who said that it was a common spring migrant.

91. (514) *Hesperiphona vespertina vespertina.* EVENING GROSBEAK.—Captain McDonald informed us that he has occasionally seen this species on the island during the winter and early spring.

92. (515) *Pinicola enucleator leucura.* PINE GROSBEAK.—Captain McDonald informed us that during the nine winters which he has spent on the island this species has been seen nearly every year, in some years being quite common.

93. (517) *Carpodacus purpureus purpureus.* PURPLE FINCH.—The purple finch was seen in flocks on August 20. Another flock of about fifty was seen on August 23 and again on August 25, but none were seen after the last date. It may nest on the island, as it was found breeding on Sand Point in 1908.

94. (521) *Loxia sp.* CROSSBILL.—Captain McDonald informed us that a crossbill winters on the island, but the species could not be determined from his description.

95. (529) *Astragalinus tristis tristis.* GOLDFINCH.—The goldfinch was rare on the island and was not seen until August 26. It may breed on the islands.

96. (534) *Plectrophenax nivalis nivalis.* SNOWFLAKE.—This bird was not seen on the island, but it was found on the shore near Caseville (ten miles to the southeast) on October 12. The keepers told us that it comes to the island in large flocks in late fall and winter.

97. (536) *Calcarius lapponicus lapponicus.* LAPLAND LONGSPUR.—The writer was surprised to find two of this species on the beach near the light-house on the morning of September 30. Again, on October 2, two were seen at Little Charity, and on the next day two more on Charity. These were all the records secured, but the species is no doubt abundant later in the fall and winter.

98. (540) *Pooecetes gramineus gramineus.* VESPER SPARROW.—This sparrow was first seen on August 31, but was quite rare until the migration wave of September 20-21, when it came in some numbers with the Lincoln sparrow. Another wave came on the night of October 5-6, and it was first seen in abundance at this time. It was still common on the island on October 11.

99. (542a) *Passerculus sandwichensis savanna.* SAVANNA SPARROW.—The first bird of this species was seen on August 29, on the west beach of the island. Only a few were seen after this date, until the night of September 3, when great numbers came to the island and were found the next morning on all the beaches and sand dunes, feeding on the seeds of beach grasses and the insects found at the water's edge. These birds were very tame and could be observed at close range. All of them, with the other sparrows

on the island, migrated on the night of September 10, and the next day only a very few were to be seen. On the night of September 12-13, another wave occurred, and the next day they were as numerous as before. Many more came on September 14-15, so that literally thousands were on the island by September 19. Most of them were gone, however, on September 20, and on October 7 the last bird was seen: At Ann Arbor, this species has but once been observed in the fall, September 17-30, 1910.

100. (554) *Zonotrichia leucophrys leucophrys.* WHITE-CROWNED SPARROW.—The white-crowned sparrow was first seen on September 19, and came on the same migration wave with the Savanna, white-throated and Lincoln sparrows. The white-crowned were at this time all about the light-house clearing, feeding on the seeds of beach grasses, and when alarmed sought cover in the small willows on the first sand dunes. They were also observed feeding and drinking along the beaches. Many of these passed on during the next night, September 19, but another great wave of sparrows occurred on September 29, and this species was to be seen everywhere except in the thick forest. It seemed to prefer the more open areas, such as the sand dunes and beaches, which swarmed with them. Nearly all left the island on the night of October 4, and only a few were seen as late as October 11. At Ann Arbor, the species is rare, and the earliest record is October 3 (1906).

101. (558) *Zonotrichia albicollis.* WHITE-THROATED SPARROW.—On the morning of September 13, the white-throated sparrow was seen for the first time, and was then generally distributed over the island. As a rule, it kept in the woods and thicker cover than the white-crowned. The most of them passed on during the night of September 19. The largest migration of the species occurred on the night of September 21, and on the following day thousands of this species were seen, generally in the thick forest, but many in the willows on the sand dunes. Another wave came to the island the night of September 28, and the birds that came at this time had mostly moved on by October 1, and by October 5 nearly all had gone. On October 11 only five individuals were to be found. At Ann Arbor, this species arrives as early as September 23 (1906).

102. (559) *Spizella monticola monticola.* TREE SPARROW.—This sparrow was first seen on October 3, on the sand dunes on the west side of the island. It became common on October 6, when hundreds of them were seen. It was still common when the writer left the island, October 11. At Ann Arbor, the species arrives as early as September 20 (1907).

103. (563) *Spizella pusilla pusilla.* FIELD SPARROW.—The field sparrow probably bred on the island, as it was observed as early

as August 18. But few were seen, however, until September 27, when numbers came to the island. Some were still to be seen on October 11.

104. (567) *Junco hyemalis*. SLATE-COLORED JUNCO.—The first record for the junco was on September 9, when a few were seen on the high sand dune near the light-house. It became common on September 22, and hundreds were seen on that date. Some of these birds passed on in a few days, but the species was common when we left the island, October 11. At Ann Arbor, the earliest record is September 20 (1908).

105. (581) *Melospiza melodia melodia*. SONG SPARROW.—This species was found on the island on August 18, and was a not uncommon breeder in the bushes about the cranberry marsh, the edge of the pond and the shores of the island. It was seen every day until October 19.

106. (583) *Melospiza lincolni lincolni*. LINCOLN'S SPARROW.—The first bird of this species was observed on September 7, when one was flushed from the ground under a juniper bush. It only flew a short distance and lit in another bush, from which it was flushed with difficulty. It then flew a few feet and lit in a low tree and behind the trunk, where it peered out from one side and then the other at its disturber. The species was not seen again until the migration wave of September 14, when several were seen on the first sand dune on the west side, apparently feeding on the seeds of the beach grasses. When flushed the birds would fly to the nearest cover and hide. On September 17, it was found that these birds had gone, but on the night of September 18, another wave arrived, and the birds were common, but only for one day, as they disappeared on the night of September 19. More came on the night of September 21, and were found in numbers on the west beach. Flocks of five and six were constantly seen and readily identified by the short and warbler-like flight. When alarmed they also had a short characteristic call note. The species was last seen on October 1, when five were seen near the pond. Birds that came during each wave were usually found the next day, feeding and resting on the first sand dune on the west side of the island, but those that remained more than one day were found in the interior and about the inland pond, where they fed in the open cranberry marsh, but never far from the border of thick bushes, to which they retreated when disturbed. The writer found, however, that like many of the sparrows and warblers, they could be called by chirping, which made it possible to identify many birds that could not otherwise be seen. By walking quietly along, these sparrows, when flushed, would fly but a short distance, sometimes only a

few feet, and then when called would generally hop on a dead limb in plain view and would often come quite near to the observer. At the slightest movement, however, the birds would take fright and disappear.

The writer has been unable to trace the migration route of this species through the southern part of Michigan or Ontario, as it has but once (October 8, 1881) been observed at Ann Arbor in the fall, and there are but two fall records for Point Pelee, Ontario. W. E. Saunders* found twelve dead birds of this species on the southern shore of Lake Huron, on October 21, 1906.

107. (584) *Melospiza georgiana*. SWAMP SPARROW.—The swamp sparrow was first seen on August 27, but, as it frequented the thick vegetation about the pond, it was no doubt on the island when we arrived, and probably bred there. It was rarely seen until October 4, when it became rather common on the low wet beach on Rattlesnake Point. It was seen there until October 11, and seemed to feed on the open beach close to thick rushes and tall beach grass. These birds were no doubt migrants, as none were seen in this habitat earlier in the season and, in fact, very few anywhere on the island.

108. (585) *Passerella iliaca iliaca*. FOX SPARROW.—This bird was first seen on September 25, and on this date numbers were seen about the pond, where they were feeding on the mud flats exposed by the low water. When alarmed, they flew into the thick willow and rose bushes at the edge of the pond. This was a favorite resort, and most of the birds seen at this time were near this habitat, although it was later seen nearly everywhere on the island, except on the open beaches. It was last seen on October 6, when a single bird was observed. The species appeared to migrate alone. At Ann Arbor it has been seen as early as October 4 (1908).

109. (—) *Passer domesticus*. ENGLISH SPARROW.—None of this species bred on the Charities, and it was only seen when birds came to or across the island. On October 8, a flock of several hundred lit on the old dock and in the tall trees near the light-house. One of the keepers said that he had seen a flock a few days before this.

110. (587) *Pipilo erythrophthalmus erythrophthalmus*. TOWHEE.—The towhee did not breed on the islands, and was not seen until October 2 and 3, when a single bird was observed—on the first date at Little Charity and on the next day on Charity. This may have been the same bird. The species was not seen again during our stay.

*The Auk, Vol. XXIV, pp. 108-110.

111. (598) *Passerina cyanea*, INDIGO BUNTING.—This species evidently did not breed on the island, as it was not seen until September 9. Two birds were seen on that date, and this was the only record secured.

112. (608) *Piranga erythromelas*. SCARLET TANAGER.—The keepers informed us that this bird is common during the spring migration in May. It was not seen by the writer.

113. (611) *Progne subis subis*. PURPLE MARTIN.—On August 16, birds of this species were seen flying about over the light-house. It apparently did not breed on the island, although a common breeder at Caseville and Bayport, and no doubt about the towns on the west shore. The ones seen were doubtless birds from one of these places, that had come out to feed over the bay.

114. (612) *Petrochelidon lunifrons lunifrons*. CLIFF SWALLOW.—The cliff swallow did not breed on the island, but a few were seen flying about the light-house clearing on August 17. These were the only ones seen and may have been migrating.

115. (613) *Hirundo erythrogastra*. BARN SWALLOW.—This species was a rare breeder on the island. One pair was seen on August 16 and subsequently, that had a nest in the top of a partly underground chicken house. The keepers said that another pair tried to build inside of the boat house, but after several successive nests had been destroyed they gave up the attempt and left. On August 20, a flock of about thirty came to the island. They fed and rested for five days and then passed on. The swallows that bred on the island did not migrate with this flock, but disappeared two days later.

116. (619) *Bombycilla cedrorum*. CEDAR WAXWING.—This species bred on the island and was not rare, being seen nearly every day. Young birds just able to fly were observed on August 17, and many in the immature plumage were seen until September 29, when the last birds were noted.

117. (621) *Lanius borealis*. NORTHERN SHRIKE.—Only one of these birds, an adult female, was seen, October 7. It was in the top of a tall Norway pine near the light-house.

118. (624) *Vireosylva olivacea*. RED-EYED VIREO.—The red-eyed vireo bred on the island, and was seen from August 17 to September 28. A nest was found in a tree near the light-house and young and immature birds were common.

119. (627) *Vireosylva gilva gilva*. WARBLING VIREO.—This vireo probably bred on the island, but not so commonly as the preceding species. It was first seen on August 17, and but a few times afterward, never becoming common.

120. (628) *Lanivireo flavifrons.* YELLOW-THROATED VIREO.—Single birds of this species were observed on September 19 and 20. Both were in oak trees near the edge of the forest at the east end of the island.

121. (629) *Lanivireo solitarius solitarius.* BLUE-HEADED VIREO.—A bird of this species was seen on September 23, in an oak tree near the north shore. Another was observed on September 27, in a poplar tree near the path across the island, and, in the same place, two more on September 28, one on September 29, and one on September 30. No others were seen on Charity Island, but one was found on Little Charity on October 2. This species seemed to prefer the deciduous trees of the interior of the island.

122. (636) *Mniotilta varia.* BLACK AND WHITE WARBLER.—This species was first seen on August 26. It became quite common on August 28, and was mostly in company with red-breasted nuthatches. In its search for food, it acted very much like the latter, creeping about on the dead limbs of the trees. After August 29, it was not found again until September 17 and 28, when single birds were seen.

123. (642) *Vermivora chrysoptera.* GOLDEN-WINGED WARBLER.—An adult male of this species was found feeding on the poplar trees at the edge of the pond, on September 16.

124. (645) *Vermivora rubricapilla rubricapilla.* NASHVILLE WARBLER.—The Nashville warbler was first seen on August 26, but no more were observed until September 21. A few were seen again on September 23.

125. (646) *Vermivora celata celata.* ORANGE-CROWNED WARBLER.—On September 29, the writer observed a small flock of this species feeding in small poplars at the edge of a white pine grove. The birds flew from tree to tree and were very restless, only stopping for a moment to feed. One or two flew down to low bushes to look for food. The only fall record we have for Ann Arbor is October 3, 1906.

126. (648a) *Compsothlypis americana usneæ.* NORTHERN PARULA WARBLER.—Two parula warblers were seen in oak trees near the west side of the island, on September 26. This species is also rarely seen at Ann Arbor in the fall; the earliest record is September 27 (1908).

127. (650) *Dendroica tigrina.* CAPE MAY WARBLER.—The first record for this species was secured on the morning of August 22, when the writer saw several in company with prairie and bay-breasted warblers. This flock had evidently arrived in the night, and when seen the birds were feeding in some low trees near the light-house. After this date the species became quite common, and

was seen at intervals of a few days until October 3, when the writer observed three. It has been seen at Ann Arbor as early as September 9 and as late as September 27 (1908).

128. (652) *Dendroica æstiva æstiva*. YELLOW WARBLER.—The yellow warbler was a rare breeder on the island. It was seen on our arrival, and after this until September 9.

129. (654) *Dendroica cærulescens cærulescens*. BLACK-THROATED BLUE WARBLER.—This species was first seen on August 31, in low trees near the path across the island. No more were seen until September 13, and it did not become common until September 26, when a migration occurred. The bulk of the birds that arrived on this date passed on the next night, and only a few were seen on the island until the night of October 5, when hundreds of them arrived with great numbers of palm, myrtle and black-throated green warblers. These passed on the next night, and no more black-throated blue warblers were seen.

130. (655) *Dendroica coronata*. MYRTLE WARBLER.—The first myrtle warblers were seen on August 28, when a few were found in company with the bay-breasted near the light-house. No more were seen until September 15 and 16, after which a few were observed on the island until the night of October 5, when thousands of them arrived in company with other warblers, mostly the palm. The last of this migration crossed the bay early in the morning, and, as the wind blew very strongly, they flew low and alighted on the ground all about the light-house and in the clearing. The bushes and tall grass surrounding the clearing were alive with them at this time. I noticed them feeding on seeds of the beach grasses and also on the flies that covered the sides of the house. The birds fed on the latter until they were gone, and then left the clearing (about 10 a. m.) and scattered over the island in search of food. The birds were very tame. On October 7, only ten were found, and this number was about all that were seen on any day afterward.

131. (657) *Dendroica magnolia*. MAGNOLIA WARBLER.—The first bird of this species was seen on August 18, when an immature specimen was found in low willows near the east beach. It was next seen on August 24 and 26, near the light-house, and after this from one to three birds were seen on various dates until October 6.

132. (659) *Dendroica pensylvanica*. CHESTNUT-SIDED WARBLER.—This warbler evidently did not breed on the island, owing perhaps to the absence of favorable conditions. A few were seen on September 15 and September 29.

133. (660) *Dendroica castanea*. BAY-BREASTED WARBLER.—This species was first seen on August 27, when a small flock came to

Fig. 2 Barred Owl: young bird of-the-year (*Syrnium varium*)
Photo. from life by the author.

the island and fed in some trees near the light-house. After this date, the species was seen every day until October 12, and was by far the most abundant bird on the island. It was found everywhere, feeding on the ground as well as in the tallest trees, and even at the water's edge on the rocky beach. On the night of September 3, a large migration occurred, and the bulk of the migrants were of this species. Thousands were seen about the light-house at this time, and considerable numbers in the trees all over the island, but on September 13 only three could be found. On September 16, it was again common and continued so until October 6, when nearly all disappeared. At Ann Arbor, it has been taken as early as September 5 (1896), and is often very common.

134. (661) *Dendroica striata.* BLACK-POLL WARBLER.—This warbler was one of the rarest on the island and was only seen but a few times. The first one observed was on September 5. Two more (the last seen) were found on September 9. At Ann Arbor, this species has been seen as early as September 9 (1907), but it is never as common as the preceding.

135. (662) *Dendroica fusca.* BLACKBURNIAN WARBLER.—This warbler was first seen on August 26, but not again until September 5, when one was found dead under the light-house. The latter was the last record secured. Its rarity is surprising, as it was found to be rather common on Sand Point in June, July and August, 1908, and it also breeds on the mainland west and northwest of the island. At Ann Arbor it has been seen as early as August 23 (1908).

136. (667) *Dendroica virens.* BLACK-THROATED GREEN WARBLER. —The first record for the black-throated green warbler was secured on September 8. After this date, a few birds were seen on September 19, 21, 27, 28 and 29. On October 6, the birds came to the island in numbers with the myrtle and black-throated blue warblers. All disappeared on the next night and no more were seen. The species may breed on the island, as it was found breeding on Sand Point in June, 1908. It is a common breeder on the mainland west and northwest of the island. It has been observed at Ann Arbor as early as September 8 (1907).

137. (672) *Dendroica palmarum palmarum.* PALM WARBLER.— On August 24, the first individual of this species was seen in the trees near the light-house. It was not observed again until September 5, when it came in small numbers with a big migration wave of warblers, thrushes and vireos. It did not become common, however, until September 13, when there occurred another big migration wave of warblers and sparrows. This species was then represented by considerable numbers. Another wave occurred

on the night of September 18, and on the morning of the 19th the species was very abundant. There must have been thousands of individuals about the light-house, where they fed partly on flies that collected on the window screens and sides of the house, and apparently also on ground insects, and possibly seeds of the beach grasses. Over the rest of the island they were rather generally distributed, but showed some preference for the open beaches and sand dunes. These birds all passed on during the next night, and on September 20, and afterward, only a few were seen until the night of October 5, when the largest wave of warblers and sparrows reached the island. Among the birds in this movement there were thousands of this species and of the myrtle, and large numbers of black-throated blue, and black-throated green warblers, American redstarts, juncos, vesper sparrows, and a few horned larks. These all came about the light-house and buildings and lit on the ground, on the steps, window ledges and screens, where they soon devoured most of the numerous house flies. By October 11 the palms had disappeared, with the exception of a very few. But one fall record is known for Ann Arbor, October 1, 1896.

138. (673) *Dendroica discolor*. PRAIRIE WARBLER.—This warbler was first seen on the morning of August 22, when several were observed with Cape May warblers in small trees near the light-house. On August 24, the writer saw three more, the last found.

139. (674) *Seiurus aurocapillus*. OVEN-BIRD.—The oven-bird was found on August 31, when the writer saw several along the path through the woods. It was not seen again until September 5, and after this only occasionally until September 30, when the last one was noted. These birds were always on the ground under low bushes and tall ferns, and could only be seen by calling, when they would fly up into a low tree or on a bare log, often coming within a few feet of the observer.

140. (675a) *Seiurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—What seemed to be a family of this species was found on August 17. The probabilities are that these were migrants. It breeds in the northern peninsula and migrates early, as it came to Sand Point on August 5, 1908, and was present there until August 14. The last one seen on Charity Island was on August 22. All of the Michigan water-thrushes seem to belong to this sub-species, and it is doubtful if any typical *noveboracensis* are to be found in the Great Lakes region. On the other hand, many birds that are intermediate between the two forms are found, which seems to show that the forms intergrade near this region.

141. (678) *Oporornis agilis.* CONNECTICUT WARBLER.—This species was first seen on the morning of August 31, near the path across the island. The preceding night had been clear and cool, with a strong northeast wind. The species arrived with the ovenbird and mourning warbler, remained fairly common until September 9, and was seen as late as September 19. It was only observed in the interior of the island, where it fed under tall ferns that grew in profusion there. By walking quietly and slowly and stopping to call, birds of this species, if within hearing, would usually hop or fly up into the low branches of trees or on logs. They would come quite close to the observer, but generally disappeared promptly when they got a good look at the intruder. Some were called out of low thickets, but most of them seemed to feed in the thick ferns in the more open places in the woods.

142. (685) *Wilsonia pusilla pusilla.* WILSON'S WARBLER.—The first bird of this species was seen on September 7, when the writer secured one in the poplar trees near the path across the island. This was the only one seen in the interior, but a few hours later another was seen in a low maple near the beach at the south end of the island.

143. (686) *Wilsonia canadensis.* CANADA WARBLER.—On August 27, several Canadian warblers were seen in low willow bushes on the first sand dune on the west side of the island. It was not noted again until September 8 and 9, and other records were secured on September 13 and 15. At Ann Arbor, the species has been seen as early as August 23 (1908), and at Point Pelee on August 15 and 16 (1908).

144. (687) *Setophaga ruticilla.* REDSTART.—This species was a not uncommon breeder on the island. On the night of September 4, numbers came with the migration of warblers, thrushes and vireos, but by September 10 none could be found. On September 13, a few more came and were seen almost daily until the night of October 5, when their number was increased by hundreds that arrived with the migration of palm and myrtle warblers. The redstarts all disappeared on the next night, and no more were seen on the island.

145. (697) *Anthus rubescens.* PIPIT.—Early on the morning of September 19, the writer observed a flock of about twenty of this species on the west beach. The birds were walking about and feeding among the rocks. This flock was very wild, and when disturbed flew off toward Sand Point. No more were seen until September 23, when a flock of fifteen came to the light-house beach. This flock was increased to about fifty the next day, but these passed on during the next few days, and on September 27 but one

was to be found. On October 1, two more—the last ones—were seen. This species always lit on the rocky beaches and fed there, and in the beach grass on the first sand dune. They were rather shy and quite difficult to approach.

146. (704) *Dumetella carolinensis.* CATBIRD.—This species was found on our arrival at the island, August 16, but could only have been a rare breeder, as this bird was the only one seen during our stay.

147. (705) *Toxostoma rufum.* BROWN THRASHER.—The brown thrasher was not seen until September 15, when one was observed in the willows on the west sand dune. The next day several were seen in the same locality. These probably came to the island with the migration of thrushes on the night before. On September 21, one was seen at the west side of the pond, and single birds were noted on September 26, 29 and 30.

148. (721) *Troglodytes aëdon aëdon.* HOUSE WREN.—This wren was not found on the island until September 8 (one specimen). Another was noted on September 9, and a third and last one on September 15. The birds were found in the more open part of the island, about the tops of fallen trees and the brush piles.

149. (722) *Nannus hiemalis hiemalis.* WINTER WREN.—A single bird of this species was seen on August 29, in the low willows that border the first sand dune on the west side of the island. Another was noted on September 13, and on September 19 several more were observed. After the latter date it was rather common until October 8, when it was last seen.

150. (724) *Cistothorus stellaris.* SHORT-BILLED MARSH WREN.—Only one specimen of this marsh wren was seen on the island. This bird was secured in the cranberry marsh at the edge of the pond on September 16. It flew up from the coarse grass and lit in a willow bush. This record is the most northern one known to the writer.

151. (726) *Certhia familiaris americana.* BROWN CREEPER.—The first record for this species was secured on September 3, when one was observed climbing up a large oak tree near the path across the island. Another was seen on September 6, but no more until September 14, when several were seen. On September 26 it came to the island in some numbers, twenty being seen on that date. The last one was seen on October 6.

152. (727) *Sitta carolinensis carolinensis.* WHITE-BREASTED NUTHATCH.—If this nuthatch bred on the island it was in very small numbers. A single bird was observed on August 31, another on [illegible] and a fourth and last on

October 1. The scarcity of the species is hard to account for, as there were plenty of hollows for nesting sites, and no evident scarcity of food.

153. (728) *Sitta canadensis.* RED-BREASTED NUTHATCH.—This species was found on the island on August 18. It may have bred there, as several were seen on that date and the species breeds on the mainland in this latitude. It became common on August 26 and continued so until September 7, when it became abundant. Most of them passed on within a day or so after the latter date, leaving only a few on the island. Two more were seen on October 11, the last day of our stay. At Ann Arbor, this species has been seen as early as September 10 (1908).

154. (735) *Penthestes atricapillus atricapillus.* CHICKADEE.—The chickadee was found on our arrival at the island, on August 16, and a few no doubt bred there. Small flocks were seen almost daily until October 8. The birds were found in low willows along the beach, as well as in the pines of the interior, often in company with the red-breasted nuthatch and flocks of warblers.

155. (748) *Regulus satrapa satrapa.* GOLDEN-CROWNED KINGLET.—This kinglet was first seen on September 20, but it did not become common until September 26, when it came to the island in some numbers with the next species. It was found all over the island, but seemed to prefer the tops of the pines as a feeding place. The numbers appeared to increase until September 29, on which date hundreds were observed. On September 30, only a few birds were seen, but it was still on the island when we left it, October 11. At Ann Arbor, it has been seen as early as September 23 (1906).

156. (749) *Regulus calendula calendula.* RUBY-CROWNED KINGLET.—The ruby-crowned kinglet was first noted on September 19. It became common on September 26, when it was observed in large numbers all over the island, with flocks of the golden-crowned. This species also fed mostly in the pine trees. Most of the birds disappeared on September 29, but a few were seen as late as October 11.

157. (756) *Hylocichla fuscescens fuscescens.* VEERY.—Three records of this species were secured, September 3, 5 and 7. It no doubt came with the migration of thrushes, mostly olive-backed. It has been found nesting at Ann Arbor by the writer (May 24, 1904), but as a rule it breeds farther north.

158. (757) *Hylocichla alicia alicia.* GRAY-CHEEKED THRUSH.—This thrush was first noted on September 14, and the next day numbers were seen all over the interior of the island. On Sep-

on the night of September 18, and on the morning of the 19th the species was very abundant. There must have been thousands of individuals about the light-house, where they fed partly on flies that collected on the window screens and sides of the house, and apparently also on ground insects, and possibly seeds of the beach grasses. Over the rest of the island they were rather generally distributed, but showed some preference for the open beaches and sand dunes. These birds all passed on during the next night, and on September 20, and afterward, only a few were seen until the night of October 5, when the largest wave of warblers and sparrows reached the island. Among the birds in this movement there were thousands of this species and of the myrtle, and large numbers of black-throated blue, and black-throated green warblers, American redstarts, juncos, vesper sparrows, and a few horned larks. These all came about the light-house and buildings and lit on the ground, on the steps, window ledges and screens, where they soon devoured most of the numerous house flies. By October 11 the palms had disappeared, with the exception of a very few. But one fall record is known for Ann Arbor, October 1, 1896.

138. (673) *Dendroica discolor*. PRAIRIE WARBLER.—This warbler was first seen on the morning of August 22, when several were observed with Cape May warblers in small trees near the light-house. On August 24, the writer saw three more, the last found.

139. (674) *Seiurus aurocapillus*. OVEN-BIRD.—The oven-bird was found on August 31, when the writer saw several along the path through the woods. It was not seen again until September 5, and after this only occasionally until September 30, when the last one was noted. These birds were always on the ground under low bushes and tall ferns, and could only be seen by calling, when they would fly up into a low tree or on a bare log, often coming within a few feet of the observer.

140. (675a) *Seiurus noveboracensis notabilis*. GRINNELL'S WATER-THRUSH.—What seemed to be a family of this species was found on August 17. The probabilities are that these were migrants. It breeds in the northern peninsula and migrates early, as it came to Sand Point on August 5, 1908, and was present there until August 14. The last one seen on Charity Island was on August 22. All of the Michigan water-thrushes seem to belong to this sub-species, and it is doubtful if any typical *noveboracensis* are to be found in the Great Lakes region. On the other hand, many birds that are intermediate between the two forms are found, which seems to show that the forms intergrade near this region.

141. (678) *Oporornis agilis.* CONNECTICUT WARBLER.—This species was first seen on the morning of August 31, near the path across the island. The preceding night had been clear and cool, with a strong northeast wind. The species arrived with the oven-bird and mourning warbler, remained fairly common until September 9, and was seen as late as September 19. It was only observed in the interior of the island, where it fed under tall ferns that grew in profusion there. By walking quietly and slowly and stopping to call, birds of this species, if within hearing, would usually hop or fly up into the low branches of trees or on logs. They would come quite close to the observer, but generally disappeared promptly when they got a good look at the intruder. Some were called out of low thickets, but most of them seemed to feed in the thick ferns in the more open places in the woods.

142. (685) *Wilsonia pusilla pusilla.* WILSON'S WARBLER.—The first bird of this species was seen on September 7, when the writer secured one in the poplar trees near the path across the island. This was the only one seen in the interior, but a few hours later another was seen in a low maple near the beach at the south end of the island.

143. (686) *Wilsonia canadensis.* CANADA WARBLER.—On August 27, several Canadian warblers were seen in low willow bushes on the first sand dune on the west side of the island. It was not noted again until September 8 and 9, and other records were secured on September 13 and 15. At Ann Arbor, the species has been seen as early as August 23 (1908), and at Point Pelee on August 15 and 16 (1908).

144. (687) *Setophaga ruticilla.* REDSTART.—This species was a not uncommon breeder on the island. On the night of September 4, numbers came with the migration of warblers, thrushes and vireos, but by September 10 none could be found. On September 13, a few more came and were seen almost daily until the night of October 5, when their number was increased by hundreds that arrived with the migration of palm and myrtle warblers. The redstarts all disappeared on the next night, and no more were seen on the island.

145. (697) *Anthus rubescens.* PIPIT.—Early on the morning of September 19, the writer observed a flock of about twenty of this species on the west beach. The birds were walking about and feeding among the rocks. This flock was very wild, and when disturbed flew off toward Sand Point. No more were seen until September 23, when a flock of fifteen came to the light-house beach. This flock was increased to about fifty the next day, but these passed on during the next few days, and on September 27 but one

was to be found. On October 1, two more—the last ones—were seen. This species always lit on the rocky beaches and fed there, and in the beach grass on the first sand dune. They were rather shy and quite difficult to approach.

146. (704) *Dumetella carolinensis.* CATBIRD.—This species was found on our arrival at the island, August 16, but could only have been a rare breeder, as this bird was the only one seen during our stay.

147. (705) *Toxostoma rufum.* BROWN THRASHER.—The brown thrasher was not seen until September 15, when one was observed in the willows on the west sand dune. The next day several were seen in the same locality. These probably came to the island with the migration of thrushes on the night before. On September 21, one was seen at the west side of the pond, and single birds were noted on September 26, 29 and 30.

148. (721) *Troglodytes aëdon aëdon.* HOUSE WREN.—This wren was not found on the island until September 8 (one specimen). Another was noted on September 9, and a third and last one on September 15. The birds were found in the more open part of the island, about the tops of fallen trees and the brush piles.

149. (722) *Nannus hiemalis hiemalis.* WINTER WREN.—A single bird of this species was seen on August 29, in the low willows that border the first sand dune on the west side of the island. Another was noted on September 13, and on September 19 several more were observed. After the latter date it was rather common until October 8, when it was last seen.

150. (724) *Cistothorus stellaris.* SHORT-BILLED MARSH WREN.—Only one specimen of this marsh wren was seen on the island. This bird was secured in the cranberry marsh at the edge of the pond on September 16. It flew up from the coarse grass and lit in a willow bush. This record is the most northern one known to the writer.

151. (726) *Certhia familiaris americana.* BROWN CREEPER.—The first record for this species was secured on September 3, when one was observed climbing up a large oak tree near the path across the island. Another was seen on September 6, but no more until September 14, when several were seen. On September 26 it came to the island in some numbers, twenty being seen on that date. The last one was seen on October 6.

152. (727) *Sitta carolinensis carolinensis.* WHITE-BREASTED NUTHATCH.—If this nuthatch bred on the island it was in very small numbers. A single bird was observed on August 31, another on September 14, a third on September 28, and a fourth and last on

October 1. The scarcity of the species is hard to account for, as there were plenty of hollows for nesting sites, and no evident scarcity of food.

153. (728) *Sitta canadensis.* RED-BREASTED NUTHATCH.—This species was found on the island on August 18. It may have bred there, as several were seen on that date and the species breeds on the mainland in this latitude. It became common on August 26 and continued so until September 7, when it became abundant. Most of them passed on within a day or so after the latter date, leaving only a few on the island. Two more were seen on October 11, the last day of our stay. At Ann Arbor, this species has been seen as early as September 10 (1908).

154. (735) *Penthestes atricapillus atricapillus.* CHICKADEE.—The chickadee was found on our arrival at the island, on August 16, and a few no doubt bred there. Small flocks were seen almost daily until October 8. The birds were found in low willows along the beach, as well as in the pines of the interior, often in company with the red-breasted nuthatch and flocks of warblers.

155. (748) *Regulus satrapa satrapa.* GOLDEN-CROWNED KINGLET.—This kinglet was first seen on September 20, but it did not become common until September 26, when it came to the island in some numbers with the next species. It was found all over the island, but seemed to prefer the tops of the pines as a feeding place. The numbers appeared to increase until September 29, on which date hundreds were observed. On September 30, only a few birds were seen, but it was still on the island when we left it, October 11. At Ann Arbor, it has been seen as early as September 23 (1906).

156. (749) *Regulus calendula calendula.* RUBY-CROWNED KINGLET.—The ruby-crowned kinglet was first noted on September 19. It became common on September 26, when it was observed in large numbers all over the island, with flocks of the golden-crowned. This species also fed mostly in the pine trees. Most of the birds disappeared on September 29, but a few were seen as late as October 11.

157. (756) *Hylocichla fuscescens fuscescens.* VEERY.—Three records of this species were secured, September 3, 5 and 7. It no doubt came with the migration of thrushes, mostly olive-backed. It has been found nesting at Ann Arbor by the writer (May 24, 1904), but as a rule it breeds farther north.

158. (757) *Hylocichla aliciæ aliciæ.* GRAY-CHEEKED THRUSH.—This thrush was first noted on September 14, and the next day numbers were seen all over the interior of the island. On Sep-

tember 28 and 29, a great increase in numbers was noted, but most of these passed on during the night of October 2, and the last were seen on October 7.

159. (758a) *Hylocichla ustulata swainsoni.* OLIVE-BACKED THRUSH.—On the night of September 4, there occurred a large migration of thrushes, mostly of this species. The night was warm, and at midnight a storm came up from the northeast. Thousands of birds came to the light, and great numbers were seen to be of this species. The darkness and the rain confused them, and many came close enough to the light to make identification certain. Some struck the glass and were killed, while others fluttered around and against it, calling loudly all the while. All the thrushes that were killed belonged to this species. By September 10, it was scarce and remained so until September 28, when it again became common. The last were seen on October 7.

160. (759b) *Hylocichla guttata pallasi.* HERMIT THRUSH.—This species was first seen on September 15, and it was only occasionally observed after that until September 29, when hundreds came to the island, with the olive-backed and gray-cheeked thrushes. These nearly all left the island on the night of October 5, and none were seen after October 7.

161. (761) *Planesticus migratorius migratorius.* ROBIN.—A few robins were found on the island when we arrived, and both old and young birds were noted. The keepers said that a few were seen about the pond during the summer. Only a few were seen until August 31, when some migrants arrived. The birds were often seen on the mud flats at the edge of the pond, and they also fed on the bearberries at the edge of the woods near by. On October 1, they became common and continued so as long as we remained on the island.

162. (766) *Sialia sialis sialis.* BLUEBIRD.—No bluebirds were seen by the writer, but Captain McDonald said that the species is very common during migration in the spring and fall. According to him, it comes in flocks in the latter part of October and early November.

Fig. 1. Nestlings of the Barred Owl (*Syrnium varium*) at the time of leaving the nest. Dr. Shufeldt photo: from life.

PLUMAGES OF THE YOUNG OF THE BARRED OWL.

BY DR. R. W. SHUFELDT, F. A. O. U., ETC.
WASHINGTON, D. C.

(Photos from Life by the Author.)

Ornithologists in this country have, as a rule, paid but little attention in their writings to the characters and coloration of the plumage of the nestlings of birds, or during the various stages of their sub-adult life. This fact I have pointed out in various articles published during the past twenty-five years or more, and especially in one entitled "The Study of Nestling Birds," which appeared in *The Atlantic Slope Naturalist* in 1903 (Vol. 1, No. 4, Sept. and Oct., p. 37–44), and another which appeared in *Natur und Haus* during the same year, entitled, "Das Studium der Nestlinge" (Jahr. xii. Heft, 4, p. 49–53).

In the present article this important subject will be further illustrated by selecting the first plumages of the Barred Owl (*Strix varia varia*) as an example of the extent of the attention ornithologists have bestowed upon such matters.

For instance, if we choose Wilson as an authority we find he states in his own account of that bird that he "At another time, in passing through the woods, perceived something white, on the high shaded branch of a tree, close to the trunk, that, as I thought, looked like a cat asleep. Unable to satisfy myself, I was induced to fire, when to my surprise and regret, four young Owls, [*Strix nebulosa*] of this same species, nearly full grown, came down headlong, and, fluttering for a few moments, died at my feet." Here was an excellent opportunity to describe in a few lines the plumage of the young of this Owl, but he never availed himself of it. That these four young owls looked like a "white cat" in the tree goes for little, especially in view of the fact that there were probably plenty of black cats in Wilson's time.

Audubon, who enjoyed for many years abundant opportunity to study the Barred Owl, makes no reference whatever to

the young of that species in his *Birds of America,* and his description of the plumage and its color in the adult is extremely vague and unsatisfactory.

Coues in the Fifth Edition of his *Key to North American Birds,* has nothing to say about the young of any of the Barred Owls, at any stage of their development.

Ridgway in his *Manual of North American Birds,* under the description of the Barred Owl (*S. nebulosum*) offers us one of the plumages of the young of this species, with respect to color and character of markings. This description evidently refers to the young at the time of leaving the nest, although the author does not so state. This I take to be so from the fact that he says of the "*Young*: Head, neck, and entire lower parts broadly barred with rather light umber-brown and pale buffy and whitish, the brown and lighter bars about equal in width." Now if Figs. 1 and 2 of the present article are compared, it will be observed that in the nestling the markings consist of very irregular lines, and by no means definite bars (Fig. 1), while in the young bird-of-the-year, the lower parts are marked by broken longitudinal stripes. (Fig. 2). Hence, Ridgway's description, to say the least, is rather faulty. As a matter of fact the lower parts in the nestling are both irregularly "barred and spotted with shades of brown," as I state in my *Chapters on the Natural History of the United States* (1897, p. 240).

In the work referred to I give a full-page plate of a nestling of the species, which is a reproduction of a photograph from life made by myself. The markings are here beautifully shown, and these instead of being transverse bars, are, in reality, short, irregular, broken lines and, in some instances, spots.

So it goes for the most part throughout ornithological literature,— the descriptions of the plumages of the nestlings or the sub-adult forms of most species of birds have been either entirely omitted, or else incorrectly, shiftlessly or insufficiently recorded. In nearly all instances, a knowledge of such matters is of the greatest importance as shedding light upon the

Fig. 2 Barred Owl: young bird of-the-year (*Syrnium varium*)
Photo. from life by the author.

subject of the ancestry of birds and their affinities within the Class, and to this truth the Owls form no exception.

I have made and published numerous photographs from life of the Barred Owl and other species of the *Strigidæ*, but the figures illustrating the present article have never heretofore appeared in any ornithological publication, and, in the case of Figure 2, anywhere at all.

BIRDS OF A CANADIAN PEAT BOG.

BY C. W. G. EIFRIG.

A Canadian peat bog is a thing at once sought and delighted in, and on the other hand shunned and abhorred. It is shunned and avoided by nearly all classes of human society, that know of nothing but work, the amassing of money, and of pleasure in the old, accepted sense of the word. Such people cannot understand why a person should go to such an uninviting place, where one is drenched from underneath by water, visible or invisible in the deep moss, and also by the perspiration, wrung out of a person by the hot sun, under which one has to wade through the deep vegetation, without being able to walk in the shade. Add to this the hordes of mosquitoes, lack of drinking water, the distances one usually has to tramp, often enough in wet clothing, etc., makes a condition of things which to invade without necessity, yes, even to find pleasure and profit in, seems to them nothing short of a sign of a serious affection of the brain. And yet, naturalists of several kinds, the botanist, entomologist, particularly the ornithologist, congratulate themselves, when they have such a bog in their neighborhood, and go there as often as they have an opportunity.

Six miles east of Ottawa, the beautiful Capital of Canada and the former place of residence of the writer, there is such a bog of ample dimensions and bogginess, called the Mer Bleue. It is about ten miles long by one to four miles wide,

and is situated between the Ottawa-Montreal branch of the Canadian Pacific and Grand Trunk railways. There is farming country all around, terminating in low ridges or rounded bluffs at the margin of the bog, showing plainly its lacustrine origin. Some of these ridges in fact penetrate into the bog from the western end or from the sides, and here and there in the bog are elevations of rock and solid earth, evidently islands of a former time. Into this bog the writer has made incursions in June, July and August of nearly every summer during the six years of his residence here. One cannot go much before June, as the water is then too deep; and, as the breeding species of birds have then not yet settled down, it would not be so profitable.

Like most, if not all peat bogs, also this one has a zone or fringe of quite different appearance than the bog itself. It is a fringe of typical *swamp*, not bog, with much — uncomfortably much, visible water. This fringe of swamp, in most places only twenty-five to fifty feet in width, is effectual in keeping out all but the most ardent naturalists. Here we find the typical swamp flora, alder, cat-tail, poplar, bog-bean, *Lysimachia thyrsiflora*, etc. The typical birds of this section are, the Red-winged Blackbird, with a few Bronzed Grackles mixed in, also the Swamp Sparrow, Yellow Warbler and in some of the poplar stands is found the Nashville Warbler. Now and then a Bittern or even a Great Blue Heron is made to rise and heavily wing away. Also Soras and Virginia Rails are found in here, as well as a few loudly rasping, scolding Short-billed Marsh Wrens (*Cistothorus stellaris*). Of these the Yellow-throat and Nashville Warbler are also found in the bog proper.

The appearance of the bog is such as to at once arouse attention. The vegetation is so different from that of any other kind of territory, that one is almost forced to understand that the biological conditions obtaining here are markedly different from those of most other places. The covering underneath, into which the foot sinks deeply, consists of sphagnum moss, one of the characteristic plants of the peat

bog. In most places water gathers at once around the foot in the moss, which is like a sponge soaked full of water. Soon the eye is attracted by the odd leaves and flowers of the pitcher plant (*Sarracenia purpurea*), most of whose leave-pitchers, bristle-beset, are filled with water also. When one comes upon a colony of large, luxuriant pitcher-plants, it is a sight not soon forgotten, during the spell of which, while gazing on, one is apt to forget all about birds. Besides sphagum the characteristic peat bog flora consists of such thick-leaved, glaucous bushes as *Cassandra, Chamaedaphne calyculata, Andromeda glaucophylla, Kalmia prolifolia, Ledum groenlandicum*, different kinds of huckle- and blueberries, also large and small cranberries. Here and there are a number of small, stunted black spruce and tamarack trees, which in places form thickets, with now and then a patch of deciduous bushes, as *Cornus*, alder, viburnum, etc., between. In such patches are found the Canadian and Chestnut-sided Warblers, also a few Magnolia and Blackburnian Warblers.

But these are not the characteristic bog birds. Out in the open, where grow small, dwarfed spruces, with much space between them, we hear a song much like that of the Pine Warbler, or Chipping Sparow. There the bird is perching in a spruce. It turns out to be a Yellow Palm Warbler, *Dendroica palmarum hypochrysea*. The Palm Warbler, *D. palmarum*, also occurs in the region, but apparently only as a migrant, and it seems as if *hypochrysea* arrives here before *palmarum*, as a nest of the former, containing four eggs, was found as early as May 23, (1908). Here, where single stems of wooly-headed *Eriphorum callitris* stick up from the sphagnum, and, in August, the beautiful White-fringed Orchis, *Habenaria blephariglottis*, is also the home of the White-throated Sparrow. His slow, measured song of various numbers of syllables can be heard on all sides. Canadians make it say, *Dear, dear, Canada, Canada, Canada.* Once, while resting from the laborious, heavy walking or wading under a hot sun, one struck up his tune near me, and,

having note book and pencil in hand, I noted down the number of syllables, with this result:

Four times a song of three syllables.
Once a song of four syllables.
Once a song of five syllables.
Twice a song of six syllables.
Once a song of seven syllables.
Twice a song of nine syllables.
Once a song of ten syllables.

All this in less than fifteen minutes. Here, in the open spruce and tamarack stands, may also be heard the songs of the Hermit Thrush and the Veery, *Hylocichla guttata pallasi* and *H. fuscescens*, often during the greatest heat of midday. Of other thrushes I have seen only one Wood Thrush, and, strangely enough, the Bluebird. Beside *Zonotrichia albicollis* the following members of the finch and sparrow family are met with: the Song Sparrow, Swamp Sparrow, Chipping Sparrow, many Goldfinches, and a few Juncos.

In such a paradise for mosquitoes, flies, and moths, as a peat bog is, flycatchers are to be expected. And accordingly, on the various visits, I found no less than seven species here. Out in the alder fringe, which is repeated around every "island," the Alder Flycatcher, *Empidonax trailli alnorum* is to be heard more than seen. This species certainly knows how to keep out of sight. In the open bog the twittering song and rapidly vibrating form of our old orchard acquaintance, the Kingbird,may be heard and seen. This is a rather common species here. June 16, 1905, I found a nest in a cavity on top of a stump of a small spruce, containing three eggs, with very little nesting material in the cavity. At the edge of some of the taller and denser spruce thickets may be heard the *Hood take care*, of the Olive-sided Flycatcher, *Nuttalornis borealis*, a bird extremely partial to black spruces, preferably at the edge of some open water. If one is fortunate he may also hear another flycatcher call, similar to that of the Pewee, but richer in quality, resembling in that the Crested Flycatcher. This is the elusive Yellow-bellied Fly-

catcher, *Empidonax flaviventris*, in his breeding haunts. To me his call sounds, *Doi de woit!* The mosquitoes, however, are too thick, the spruces too dense, and the heat too great in the thickets, to look for nests. When going to an island in the bog, the only places where one may sit down without getting wet, and eat his lunch, the other members of the flycatcher family may be seen, the Crested, the Pewee and even the Phoebe. Here also the Canadian Ruffed Grouse, *Bonasa umbellus togata*, may be flushed, and the Nashville Warbler, *Vermivora rubricapilla*, heard to sing his little ditty, *Chippa chippa chippa chit churr*, or, *tshewit, tshewit, trr.* Other common *terra firma* species here, are the Purple Finch, Rose-breasted Grosbeak, Northern Flicker, Red-eyed Vireo, Redstart and Black-throated Blue Warbler, *Dendronica caerulescens*.

However, the thicket where lives the Yellow-bellied Flycatcher harbors another interesting tenant. He announces himself by a very unusual song. This is a thin, high, wiry performance, reminding one at once of the songs of the Black and White, Blackpoll, and Nashville Warblers. But this has a queer, ventriloquial quality about it, one never knows where it emanates from. It sounds as if it started on the interior of the tree, and, rapidly accelerating, it becomse a little louder, as if the bird came out along the branch to its end. This is the Golden-crowned Kinglet, also in its breeding haunts. To look for a nest here, would be like looking for the proverbial needle in the haystack. The Black and White Warbler is found here also.

The flycatchers, however, are not the only ones reaping a rich harvest from the innumerable insects flying about during a warm sunny day. Those past masters in the art of flying, the Chimney Swifts, Nighthawks, Barn and Tree Swallows, and even Cedar Waxwings ar found plying the same trade. The Barn Swallows and Swifts, of course, come from the adjoining farms, unless there are some hollow trees large enough for nesting and lodging quarters for the latter on one or the other of the islands; in the bog there are none.

The tree swallows rest in the alder-poplar fringe on the margin and around the islands. The Cedarbirds later on, when the berries ripen, reap a rich harvest in them. Toward the end of August these various large and small berry-bearing shrubs, such as high and low huckleberries, large and small cranberries and blueberries *Viburnum alnifolium, Nemopanthus mucronata,* etc., are fairly alive with birds. Then the Cedarbird is in its glory, but also the Robin, Catbird, Brown Thrasher, Flicker and others invade the bog and share in the rich feast. Then also the Myrtle Warbler, *Dendroica coronata,* is more apparent than earlier in the season; it breeds here sparingly and its soft, babbling little warble, *Whit, whit whit whit drrrr,* something like the Nashville Warbler, is seldom heard.—Of the wren family, the House Wren only is by no means rare in the bog; and in the spruces Blue Jays and Chickadees are frequently heard or seen.

Of birds of prey, I have seen comparatively few. Now and then a Marsh Hawk gets up and circles overhead to watch the movements of the intruder. But the Sharp-shinned Hawk, *Accipiter velox,* seems to prefer the little, thickly branched spruces found here for his nesting sites. On June 3, 1909, I found the rather bulky nest of a pair in the top of a small spruce, about twelve feet up, with four eggs. The female stayed on till the ascent was begun, then she flew off noiselessly. Not so noiseless, however, were a pair or two in a stand of larger spruces at the eastern end of the bog, near some fine *Arethusa bulbosa* and *Pogonia ophioglosscides.* These had the young ones out of the nest—it was August 23,—and resented any intrusion with loud protests, showing little fear of me.

Another interesting feature in connection with visits to the bog, is to see how on different days in the summer months, the different birds in turn predominate, or make themselves most apparent. While at one time the Whitethroats are most noticeable, and the Yellow Palm Warblers are out of sight, the next time the reverse may be the case. Thus on August 5, 1909, *hypochrysea* was very apparent,

wandering with their fully grown young even on the farming land adjoining the bog. On some days the Cedar Waxwings play the leading role, then the Kingbirds, another time the Tree Swallows or even the Song Sparrow. Thus the peat bog, so dreary and monotonous to the uninitiated, presents many delightful and varying aspects and pictures to the devotees of nature-lore, who venture into it.

TWO SPECIES NEW TO THE A. O. U. CHECK-LIST.

BY W. F. HENNINGER.

In the "Dansk Ornithol. Foren Tidskrift IV" on page 130 there is an article by O. Helms entitled: "Nye Arter for Oestgroenland," which mentions four species new to East Greenland, *Marila marila, Falco peregrinus, Colymbus griseigenus* and *Totanus totanus*. There is no particular interest attached to the first two, but the other two, *Totanus totanus* and *Colymbus griseigenus* are new to the A. O. U. Check-List. The former has a hypothetical record for North America, but this is the first time we have a positive record, while the second one has never before been recorded from the neararctic region. I propose that these two species be therefore added to the A. O. U. Check-List and interpolated at the proper places.

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Official Organ of the Wilson Ornithological Club.

Edited by LYNDS JONES.

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Officers of the Wilson Ornithological Club for 1911:

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Editorial

The September number of the Bulletin will be wholly given over to Mr. Frank L. Burns' "A Monograph of the Broad-winged Hawk." It will cover some 150 pages of the regular size, and will be amply illustrated. This is the work upon which Mr. Burns has been engaged for a number of years, and will come nearer being a complete life history of this hawk than anything that has been done for any other species thus far. This paper is an illustration of what the Wilson Ornithological Club was organized to accomplish through its method of coöperation in bird study. We have no need to commend the paper to anybody, for it commends itself.

In another place in this issue there will be found a brief account of a summer bird course which is being offered to interested persons in general. In continuation of the work attempted last summer on Pelee Island, Ontario, by the writer and his company of eight students, August and the first half of September of

the present summer will be spent on Point Pelee, Ontario, in further studies of the southward movements of the birds in that especially favored place. Ten students will participate in the work, and it is hoped that they may be so distributed as to trace the direction of large flights, if any such occur. It is hardly necessary to state that these late summer classes are the direct result of the attention which has been given to the study of birds at Oberlin College since 1895, when the first class for bird study was organized in any American college. Now that the birds are receiving some attention, at least, in the public schools and in many colleges, we may confidently expect that there will be many young men and women with sufficient knowledge of and interest in birds to make many other special summer investigations possible. There is great need for studies of this special nature at all times of year, and we expect to see something of this kind done in the not distant future, especially for the spring movements in especially favorable places. Is it too much to expect that ere long the present practice of so many people of rushing off to some popular or fashionable summer resort, from which they are more than likely to return more worn than when they went, will give place to plans for spending that time in some healthful place where birds and other creatures may be studied and enjoyed, and where some real rest and recreation may be gained along with keen pleasure in delving into the secrets of this wonderful world all about us?

The first article in the May-June number of "The Condor," "The Literary and Other Principles in Ornithological Writing," by Milton S. Ray, is, to our mind, well chosen and well done. Mr. Ray's plea for readableness in ornithological writings, and his protest that simply because it is readable it is therefore not scientific, ought to be given honest consideration. It is too true of scientific writings in general that they are put into such unnecessarily technical language, often, that they become wholly unavailable to any but the initiated in that particular branch of science. This ought not so to be. The world is entitled to the results of investigations for which it is always paying in the setting apart of such investigators for their special work and thus removing them from the great army who are carrying the burden of the "day's work." We earnestly second Mr. Ray's plea for "set vernacular names based on the true relationships of birds." There is really no sound reason why this cannot be done. If it be objected that by so doing much of the sentiment of bird study would be sacrificed, we reply that this would be true of only those per-

sons who would not in any event use names accurately. We have never been quite able to understand why a paper which states at the outset that the names used in it conform strictly to the latest A. O. U. list, but in which its author chooses to use the English instead of the classical names, of that list, should be stamped at once as unscientific and unquotable. Why isn't one set of names as accurate as the other? In the long run it has proved true that the vernacular names of the A. O. U. list have been more stable than the classical names. Scientific accuracy is, of course, absolutely necessary in any event, but are the arbitrary rules which have been laid down to measure the degree of accuracy wholly tenable?

During the absence of the editor, from July 28 to September 12, the indulgence of correspondents is asked. Letters addressed to Oberlin or to Birmingham will receive attention, probably after some little delay in many cases.

Field Notes

A HOUSE WREN DRIVEN FROM ITS NEST BY SPIDERS.—On the morning of June 12, 1910, I was greeted in my garden by the song of a House Wren. At first I thought it must be a straggling bird that had dropped in to glean a breakfast among my trees, but on the following morning it was singing as usual, and close by a Downy Woodpecker's stub that I had cut down and fastened in a tree, thinking thus to attract some bird to it as a nesting site. I soon discovered the female busily looking the trees over, and now and then inspecting the stub.

The next day I saw Mrs. House Wren carrying sticks into the hole and I felt quite satisfied in having a pair of House Wrens for tenants, this being the first pair that had ever nested in my place. About a week after I missed the delightful song, so started to investigate. Rapping on the stub no bird appeared, and I soon saw that the edges of the hole were alive with small spiders. I took the stub down and opened it, and found the nest swarming with these spiders. The birds in building the nest had used small twigs entirely and had thickly stuccoed them with the white egg sacs of a species of spider, that had hatched before the Wren had deposited her own eggs, and instead of making a home for her young, she had unwittingly gathered together a fine family of spiders and provided them with a well sheltered retreat.

South Auburn, Rhode Island. HARRY S. HATHAWAY.

THE VILLAGE ENGLISH SPARROW IN THE GRAIN-RAISING REGION.—In the admirable article by Mr. Frank C. Gates, which appeared in the last Wilson Bulletin, in speaking of Havana, Illinois, there occurs the following: "The town, itself, is surprisingly free from weed patches of more than a very limited extent. For this reason, perhaps, the English sparrows, which are naturally attracted to the dwelling places of man, not finding sufficient food there, flock in groups of 25 to 150 and invade the wheat and clover fields. It was noticed repeatedly that whenever English sparrows invaded crop land it was virtually always in good-sized flocks." This calls forth two questions: Does the English sparrow ever eat weed seed to any appreciable extent when a grain diet is procurable? And is not the habit above described, one that is common to all English sparrows in the grain-raising belt?

Year after year my observations have been, that as soon as the kernels of growing grain are of edible size all the village sparrows, not held by nest duties, flock daily to the nearest grain fields; and that there is no cessation of their visits until the last shock of oats, rye, and barley has been taken to the threshing machine. Frequently, with the flocks may be seen young birds not yet able to feed themselves, to which their mothers bring food, sometimes feeding them with six or eight insertions of the bill, each insertion unquestionably showing the delivery of a kernel of grain. The toll upon the farmers' unharvested crops in the aggregate must be a vast amount. At this season, while driving along country roads, one sees the English sparrows that usually swarm about the farmers' pig-pens and chicken yards have deserted these resorts for a time and have betaken themselves to the grain fields.

This "avian rat" proves a pest to the poultry raiser, because of its pilfering the soft foods prepared for little chicks. Some people have dealt successfully with the thief by catching it in traps placed on the tops of the coops. For this purpose mouse-traps are used—the sort that consists of a wire spring fastened upon a small block of wood; merely one more device against the forces of the mighty.

National, Iowa. ALTHEA R. SHERMAN.

RARE BIRDS AT CANTON, OHIO.—The spring migration of 1911 has been especially interesting here, because of the visitation of several rare species. These were, with one exception, water fowl, and were observed chiefly on Meyer's Lake, a sheet of water about three-quarters of a mile long and a quarter of a mile wide, situated two and one-half miles west of Canton.

The first of the rarer species to be noted was the Red-breasted Merganser, on April 2, when six individuals were seen, the males simplifying identification.

On the same date were also seen the Canvas-back and Old-squaw ducks, two individuals of each. Gunners also report the shooting of several Old-squaws. Dawson, in The Birds of Ohio, says this latter species is a rare winter visitor on Lake Erie, and casual in the interior; while the Red-breasted Merganser is stated to be a rare migrant. The Canvas-back, although less rare here than the others, is till entitled to mention.

April 9, and Osprey made its appearance here, staying in the vicinity of Meyer's Lake about a week. I had not met with an Osprey since January, 1904; long enough, certainly, to permit the species to be called rare.

Two Ring-billed Gulls were observed April 16, and one April 30. This species, Dawson states, is a rare migrant for the state elsewhere than on Lake Erie. Both observations were at close range under favorable conditions, and presented the peculiar condition of the first birds seen, being in full summer plumage, while the one observed a half-month later still bore some of the streakedness of head and rear neck of the winter plumage.

April 23, two flocks of Bonoparte Gulls were met with, twelve and seven individuals respectively. Several times in years past early cottagers at the lake have reported gulls which, from description, were possibly of this species, but so far as I know this is the first time the species has been definitely identified here.

The Red-throated Loon, two individuals were observed April 30, by an ornithological friend, Edward Jacot, and myself. This species, also, is reckoned a rare migrant for Ohio, especially in the interior.

Canton, Ohio. EDWARD D. KIMES.

BIRD NOTES FROM NORTHERN NEW JERSEY.—American Merganser (*Mergus americanus*). At Pompton Plains, Passaic County, on January 1st, 1911, I found a drake of this species on the Pompton River in behind a cluster of willows. The ice had thawed slightly the night before and quite a pool had formed and in this the bird was floating and bathing. This is rather a rare bird in this lolocality. On February 18th, two more (drake and duck) on the river about two hundred yards from where the one of January 1st was found.

Wood Duck (*Aix sponsa*). At Pompton Plains on March 26th I found a pair of these beautiful ducks floating on the river near

the Canal feeder. The male was full grown and had a crest which fell on its back as it rested on the water. The female was not fully grown and its plumage was very much ruffled up. The birds were quite fearless, as they allowed me to approach within fifty feet before rising to wing, and on rising just moved far enough off to be at a safe distance. On following them up stream they kept about 100 feet ahead of me for over a mile.

Killdeer (*Oxyechus vociferus*). At Pompton Plains on March 26th, four of these birds were found on the banks of the river searching the sand for food, which they were finding in great abundance. This bird is not as abundant of late as formerly and only found occasionally during the vernal migrations.

Bloomfield, N. J. LOUIS S. KOHLER.

THE CONNECTICUT WARBLER IN MAHONING CO., OHIO.—October 3, 1910, early in the morning, I started a Connecticut warbler from the rank encircling growth of a button-bush swamp. He flew to a twig and sat intently regarding me, while I just as intently examined him through the binoculars as he paused in the effulgence of the ascending sun. His yellow was not strong nor was the slaty gray of the throat and fore-breast, but the eyes were plainly encircled by that white ring which it is so important to look for and which distinguishes him from the mourning warbler.

A moment more and he was satisfied with his examination and dashed from sight like a tiny olive-backed or gray-cheeked thrush, to which, in expression of eye, attitude, and general behavior he bore no little resemblance. By no amount of beating about the bush or wading through the wet outer tangle of jewel-weed, spanish needle, fire weed and wild-rose bushes could he be forced to reveal himself again.

Dawson, in his Birds of Ohio, regards this as one of the rarest warblers of the state, and evidently not without reason.

This is the writer's third record for this bird during a period of eleven years' observation at this station. This was in all probability a male. The first record was a female secured from high tree-tops in September, 1906. While the second bird was observed in the low herbage of a hillside thicket May 28, 1909. This bird, like the one of last autumn, was examined carefully at short range and identified beyond any doubt.

It may be noted that so far I have never recorded the mourning warbler in autumn.

Ellsworth, Ohio. ERNEST WATERS VICKERS.

THE CHOCOLATE TOWHEE.—On October 25, 1910, after three weeks of fruitless effort I secured a bird in unique plumage, which I called the Chocolate Towhee.

Extremely shy and skulking in his ways, dodging in and out of the tops of the felled trees where the withered leaves clung thick, now in the brush-heaps or through the wood-side bramble-patches, he had led me a merry and discouraging race full oft; nor ventured to drop a single note that would lead to his identity. Nor was it my fortune to get one satisfying view of him through the glasses. So I began to fear that he might flit for the south some fine night, and leave me a sadder but no wiser man.

He was almost always alone, as though considered the black sheep of the family by his species, who did not appear to take kindly to his wild, furtive ways.

Nature was evidently in sportive mood when she made him, but as is often the case with freaks, he was no improvement on the beautiful colors or elegant color pattern of the towhee, as every bird-lover knows him in thicket and forest.

And the camera failed to give a definite conception of the odd mixing of dark brown and black in his plumage.

The idea seemed to have been to make an out and out chocolate bird of him, but the black persisted. Evidently a male bird, his measurements tallied so closely with those of other males of his species as to require no comment.

His only white feather was a single one on his throat just below the bill. Otherwise the white was replaced by dark brown or chestnut—a shade or two deeper than normally—so that the entire throat, breast and belly, including the vent and under-tail coverts, were all of one color without shading. This dark brown replaced the ordinary black on rump and tail-coverts, which, however, were marked or tipped with black. And the black of the back was irregularly splashed with brown. The crown and nape partook of the brown of the lower parts, extending around and uniting with it on the throat, but enclosing the black auriculars, lores, and line over the eye. The spot at the base of the primaries with the outer tail feathers, usually white, presented the palest brown in the plumage, being quite light. And there was brown where the primaries are normally edged with white, and likewise on the tertials. The greater coverts were also carefully edged with brown. The bill was dark horn instead of black as the male chewink.

Thus in this bird we have the untire underparts captured by the brown, likewise the head, nape and rump, with the black reduced to a square block on the back, on his wings and upper tail-feathers and the cheek spots. ERNEST W. VICKERS.

NOTES ON COURTSHIP OF JUNCOS.—These observations were all made in South Ravine, as it is locally called, near the Floyd Monument. On the eigth day of March the Junco males were seen driving the females. They were driving in and out among the bushes in a deep gully, the males uttering the characteristic Junco "tsip" repeatedly. On the nineteenth of March the males were again seen driving the females, but did not confine themselves to the bushes. The males uttered the characteristic Junco call repeatedly, and on this date I heard for the first time the love song of the Junco. It consisted of a low, simple song and a trill.

On March 26, at 10:30 a. m., in company with V. J. Hayes, I watched a pair of Juncos courting. The birds had been flying about abundantly all morning, and one pair was finally located in a small scrub oak. When they first attracted attention the male was perched on a small limb above and to the left of the female. He was bobbing and bowing his head to her; his wings were drooping and fluttered slightly at times. He uttered almost continuously a faint twittering song. The female was also bobbing and bowing to him and jumped from the branch she was perched on to another one to her left and then back again; this was repeated three times. The male kept up his bobbing and bowing, but turned on his perch so that he faced her all the time. After the third repetition of this the female hopped onto the same twig with the male. They stood facing each other, bills nearly touching, and bowed solemnly, both bobbing their heads at the same time. The male's wings were still drooping. Then the female hopped back to her original perch and the bowing and hopping from one perch to another continued for a short time. The female for some unknown reason flew away, and after about thirty second the male followed her. The time consumed in the whole performance was about two minutes.

Sioux City, Iowa, April 6, 1911. IRA GABRIELSON.

HORNED GREBE AT NEWARK, NEW JERSEY.—On April 23, 1911, a pair of Horned Grebes (*Colymbus auritus*) appeared on the lakes in Branch Brook Park, Newark, N. J. One of the birds was in the summer phase and the yellow feathers which form the horned crests were well developed and conspicuous. The other still retained much of its winter plumage and the crests had not appeared at all. Both birds were very tame, as they approached within seventy feet of the shore where a number of persons were congregated and watching the birds performing their expert dives and for their reappearances after these numerous submergings. There were a number of canoes about them and when these ap-

proached the birds would suddenly disappear and come up some distance off. This is rather a rare bird in this locality and this is the first time I have found them personally, although I have been told by competent observers that they occasionally appear from year to year during the vernal migrations in this park.

LOUIS S. KOHLER.

ADDITIONAL VERNACULAR NAME FOR THE FLICKER (*Colaptes auratus*).—The residents in several sections of Northern New Jersey speak of the Flicker as the "Woodcock." There is no confusion between this bird and the real Woodcock (*Philohela minor*), which they call "Mud Hen," as on numerous occasions I have asked them to show me the bird they term as the "Woodcock" and they have pointed out the Flicker each time.

The young of this bird in many instances fall prey to pot hunters, as they are prized by some of the lesser intelligent of the country folk and nearly all of the resident aliens as a table delicacy. The Game Commission has put forth their best efforts to stamp out this traffic, but in some of the isolated portions the practice is successfully carried on and heavy inroads are made upon their numbers each year.

Bloomfield, N. J. LOUIS S. KOHLER.

Educational Work

A COURSE IN BIRD STUDY.—For the last five summers there has been given a regular course in bird study at the marine biological laboratory of the Brooklyn Institute of Arts and Sciences. The laboratory is located at Cold Spring Harbor, Long Island, New York. It is thirty miles east of New York City, on the north side of Long Island, near Oyster Bay. Dr. Charles B. Davenport is director of the laboratory, and he is also director of the Station for experimental Evolution of the Carnegie Institution of Washington, which is located on adjacent grounds.

The surrounding country is quite diversified. In the immediate vicinity are sphagnum bogs, pine barrens, forest-clad hills, briery thickets, salt marshes, four beautiful fresh-water lakes, and an arm of Long Island Sound. This variety of habitat is conducive to a variety of birds. The Spotted Sandpiper, the Little Green Heron, and the Black-crowned Night Heron nest in the vicinity, and besides these, a great many land birds. During the six weeks, the bird class locates and identifies about three hundred nests, either in use or abandoned. This gives some notion of what a bird's paradise the region is.

The course, which consists of twenty lectures and daily excursions for field identification and study, is in charge of Mrs. Alice Hall Walter, who is well known to the bird students of this country. She is the efficient editor of the Audubon Societies School Department of BIRD-LORE, but perhaps she is best known as the co-author of "Wild Birds in City Parks," a very useful little book which has gone through several editions. In addition to the regular course, special problems for individual study, relating to the food and habits of birds, are given. During the session a beginner can get an introduction into ornithology, and can become more or less familiar with some sixty species of nesting birds.

The subjects of the lectures given are as follows: (1) Nesting Birds of Cold Spring Harbor; (2) *Skeleton; (3) Study of a Bird Family—Warblers (4) *Anatomy; (5) Study of a Bird Family—Sparrows; (6) *Feathers and Molt; (7) Other Passeriform Families; (8) Water and Shore Birds; (9) *The History of Bird Classification; (10) The Facts of Migration; (11) *Theories of Migration; (12) The Ancestry of Birds; (13) Distribution; (14) Distribution in America; (15) *The Bird's Place in Nature; (16) *The Economic Value of Birds; (17) Enemies and Protection of Birds; (18) Methods of Study in Schools; (19) *General Methods; (20) Literature. The lectures marked with an asterisk are given by Dr. H. E. Walter, Professor of Zoology in Brown University.

The course will be given again this summer beginning July 5th. Excursions to the American Museum of Natural History and to Bronx Park Zoological Garden will be arranged if desired.

G. C. F.

Publications Reviewed

The Home-Life of a Golden Eagle, Photographed and Described by H. B. Macpherson, with thirty-two mounted plates. Witherby & Co., London. Second revised edition.

In this brochure of forty-five pages the author has told in a simple manner of the difficulties attending a study of the home life of this "King of Birds." Only one whose heart was in the work could brave the difficulties and endure the almost impossible weather conditions which he endured. We wonder at his success in keeping his plates dry. The mounted photographs accompanying the descriptive matter make a collection of unique and enduring value, illustrating, as they do, nearly every phase of the home life of young and parents. Mr. Macpherson must find

his reward for the hardships endured and the discomforts which attended his work in the certain knowledge that he has here advanced our knowledge of this "King of Birds" in no small degree. L. J.

Our Great Travelers. Birds that fly from pole to pole and shun the darkness: Birds that make 2,500 miles in a single flight. By Wells W. Cooke, of the Biological Survey, U. S. Department of Agriculture. Reprinted from the National Geographic Magazine, April, 1911.

However, one might feel disposed to differ with Professor Cooke in regard to his expressed theories of the origin of bird migration as set forth in this article, he must agree that the twelve accompanying maps are of the greatest value to the student of bird movements. Professor Cooke's close studies of the migrations of the birds in compiling the reports of voluntary observers gathered by the Biological Survey, have made him our authority upon this subject. We are particularly glad to receive this latest contribution from his pen. L. J.

Methods of Attracting Birds. By Gilbert H. Trafton, Supervisor of Nature Study, Passaic, N. J. With illustrations. Published under the auspices of the National Audubon Societies. Houghton Mifflin Co. $1.25, *net*.

In this 171 page book we have almost a companion piece with Martin Hiesmann's book reviewed above Indeed, frequent reference is made to this book and some of the illustrations are taken from it. Mr. Trafton has gone more into detail as regards species, adapting everything to our somewhat different conditions. The book should prove of genuine value to teachers and to others who desire to entice the birds into the vicinity of their homes for more intimate study than the open field affords. It should also aid in the preservation from destruction of some of our weaker and less adaptable species. L. J.

How to Attract and Protect Wild Birds. By Martin Hiesmann, translated by Emma S. Buchheim, with an introduction by Her Grace the Duchess of Bedford. Second edition, with many revisions, with many illustrations. London. Witherby & Co. 1911.

This little book of a hundred pages is especially concerned with the birds of Germany, but it contains many hints which should prove useful in any region. The author follows a general discussion on bird protection in Europe and particularly in his own state with detailed descriptions of nesting places and nesting

boxes, and methods of feeding, and concludes with statements regarding the necessity of suppressing the enemies of birds and the necessity for coöperation if a rational protection of the birds is to be brought about. We are pleased to note that progress has been made both in Germany and in our own country in the direction of saving from extinction certain species which are not able to cope with changed conditions resultant from the coming of civilization into these countries. With the author of this little book we hope that the time is not far distant when other countries of the world will heartily join in the movement. L. J.

Significance of White Markings in Birds of the Order Passeriformes. By Henry Chester Tracy. University of California Publications in Zoology. Vol. 6, No. 13, pp. 285–312. December 28, 1910.

This vexed question is discussed by Mr. Tracy, not in the hope that he might be able to finally settle it, but rather "for the purpose of testing the validity of one of the earliest recognized categories of coloration, that of "Directive Markings," in a single order of birds." His discussion takes the form of a review of the discussion of Thayer, who regards white markings as "Concealing," since the two supposed functions might be regarded as antagonistic. Under the heading of "Intrinsic Factors in the Evolution of Color" he properly questions the presumption of Riddle that color patterns, particularly the white patterns, may be due to rhythms of blood pressure. Under the topic of "White Markings as Visual Clues," much evidence is submitted to prove that white markings do often serve as clues, even though they may, under certain conditions, also serve the purpose of concealing coloration. This is true of the birds of the forest as well as birds of the open. The paper is a welcome contribution to the study of this difficult problem. L. J.

Photography for Bird-Lovers. A practical guide. By Bentley Beetham, F.Z.S. With photographic plates. London: Witherby & Co.

After some pertinent remarks concerning the comparatively greater satisfaction resulting from this method of hunting birds as against the hunt with a gun, the author proceeds to give detailed directions for pursuing this "sport" in ten chapters. The author gives unmistakable evidence of being master of his subject in all its details. The directions for making pictures of birds,

their nests, and surroundings are specific and detailed, and much valuable informttion is given relative to the most successful methods of approaching birds in their natural habitats. The illustrations convey an idea of what the camera may catch and hold when in the hands of a person who knows how to use it and how to approach the birds. The book should prove of great value to those who desire to undertake this fascinating work. L. J.

Election of Members

The following nominations for membership in the Wilson Club have been approved by the Executive Committee. Members will therefore confer a favor in notifying the Secretary at once if objections to any of these are offered. In the absence of objections, candidates are considered duly elected, according to our Constitution:

FOR ACTIVE MEMBERSHIP.

Bailey, Mrs. Florence Merriam, 1834 Kalorama Road, Washton, D. C.

Ball Dr. J. P., 4445 Frankford Ave., Philadelphia, Pa.

Braislin, Dr. Wm. C., 556 Washington Ave., Brooklyn, N. Y.

Burtch, Verdi, Branchport, N. Y.

Carriger, H. W., 69 A, Walter St., San Francisco, Calif.

Hankinson, Thos. Leroy, Charleston, Ill.

Messenger, G. H., Linden, Iowa.

Newberry, F. E., 210 Port St., San Francisco, Calif.

Pope, E. F., 1305 Nevada Ave., Trinidad, Colo.

Ramsden, Chas. T., Guantanamo, Cuba.

Rathbun, S. F., 217 14th Ave., North Seattle, Wash.

Read, A. C., McKinley, Isle of Pines, Cuba.

Richards, Miss Harriet E., 36 Longwood Ave., Brookline, Mass.

Riley, J. H., U. S. National Museum, Washington, D. C.

Stephens, Dr. T. C., Morningside College, Sioux City, Iowa.

Walter, Dr. Herbert E., Brown University, Providence, R. I.

ACTIVE MEMBERS.

Wheelock, Mrs. Irene G., 1040 Hinman Ave., Evanston, Ill.

Wilson, Herrick E., 6024 Ellis Ave., Chicago, Ill.

Wilson, Mrs. Julia W., 6024 Ellis Ave., Chicago, Ill.

FOR ASSOCIATE MEMBERSHIP.

Burrows, Daniel, Lacon, Marshall Co., Ill.

Crispin, Wm. B., Salem, N. J.

Hamlin, Geo. L., 46 Washington Ave., Danbury, Conn.

Law, J. Eugene, Hollywood, Calif.